

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 5,7 e

1. Edition

En

PES 6 A 75 D 410/3 RS 1197
Komb.-Nr. U 400 466 045

RSV 325-1150 A8B 494-1 L

supersedes
company KHD
engine F 6 L 912

Test ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,9-2,0}{(1,85-2,05)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1130	10,5+0,1	4,4-4,5	0,2(0,35)			
325	8,4-8,6	0,8-1,4	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Loose	800	0,3-,0,7				ca. 18	325	8,0	1130	10,5-10,6
	x = 4,8						100	min.19,5	500	11,5-11,6
							325	8,4-8,6	930	10,9-11,1
ca. 51	9,5	1170-1180					455-515	=2,0		
2a	4,0	1220-1250								
	1385	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40°C (104°F)	Note: changed to ..)	Note: changed to ..)	Note: changed to ..)	Note: changed to ..)	Note: changed to ..)	Note: changed to ..)	Note: changed to ..)	Note: changed to ..)	Note: changed to ..)
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1130	43,5-44,5 (42,0-46,0)	1170-1180*	-	-	-	-	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 3,9 b 2

1. Edition

En

PES 4 A 80 D 320 RS 1282 RSV 350-1100 A 2 B 2129-6 R

Komb.-Nr. 9 400 085 257

supersedes -
company MWM
engine D 229-4

Testo 150 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,20-2,30$ $(2,15-2,35)$ mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery, [*] cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	8,7+0,1	4,9-5,0	0,25(0,4)			
350	6,4-6,6	1,0-1,3	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21	350	6,0	1100	8,7-8,8
	x = 4,25						100	min. 19,0	500	10,0-10,1
							350	6,4-6,6	900	9,1-9,4
ca. 44	7,7	1140-1150					590-650	= 2,0		
2a	4,0	1180-1210								
	1300	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to .) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	48,5-49,5 (47,0-51,0)	1140-1150*	500	50,0-52,0 (48,0-54,0)	100	19,0-21,0 mm RW	-	-
			900	49,0-51,0 (47,0-53,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 17

2. Edition

En

PES 4 A 80 D 410/3 RS 1300 RSV 325-1175 A 8 C 657-1 L
Komb.-Nr. 0 400 464 129

supersedes 5.85
company KHD
engine F 4 L 912
tractor DX 3.70

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1175	10,8+0,1	5,8-5,9	0,25 (0,4)			
325	8,4-8,6	1,1-1,7	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 17	325	8,0	1175	10,8-10,9
ca. 51	X = 4,0						325	8,4-8,6	500	11,5-11,6
	9,8	1215-1225					445-505	2,0	1025	11,1-11,3
②a	4,0	1260-1290								
	1400	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat Note: changed to ...) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
175	58,0-59,0 (56,5-60,5)	1215-1225*	800	56,0-58,0 (54,0-60,0)	100	120,0-130,0 (117,0-133,0) =19,5-21,0 mm RW	0 -	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps ① and Governors

PES 6 A 90 D 410 RS 2293
Komb.-Nr. 9 407 083 270

RQV 300-1425 AB 740-1 L

supersedes
company Daimler-Benz
engine: OM 352
118 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1380	11,0+0,1	7,1-7,2	0,3(0,5)			
300	7,4-7,6	1,0-1,6	0,2(0,45)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1400	15,2-17,8	-	-	-	ca. 14	100	min.9,0	250	0,5-0,7
ca. 58	10,0	1400-1410					300	7,4-7,6	640	3,2-3,6
	4,0	1520-1555					800	max.1,0	1035	5,6-5,8
	1660	0-1,0							1425	8,2

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1380	71,0-72,0 (69,5-73,5)	1400-1410*	500	54,0-56,0 (52,0-58,0)	100	71,0-81,0 =13,7-14,1 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

②

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 6,1 g

6. Edition

En

40

Testoil-ISO 4113

 PES 6 A 85 D 410/3 RS 2415
 Komb.-Nr. 0 400 856 024

RQ 300/1250 AB 935 DL

 supersedes
 company:
 engine:

 9,85
 KHD
 BF 6 L 913 T
 96 kW
 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\begin{matrix} 1,90-2,00 \\ (1,85-2,05) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,1+0,1	8,0 - 8,1	0,3(0,45)			
300	8,3-8,5	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
800	19,2-20,8	800	20,0	11,1	1295-1310	300	8,4	100	min. 9,8	1250	12,1-12,2
VH = max. 46°				4,0	1370-1400			300	8,3-8,5	800	13,3-13,4
				1500	0 - 1,0			570-610	=2,0	910	13,0-13,2
										1050	12,4-12,7

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation: At 1295-1310 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm Control rod travel
1	2	3	4	5	6	7
1250	80,0 - 81,0 (78,0 - 83,0)	-	800	85,0-87,0 (82,5-89,5)	100	105,0-115,0 (102,0-118,0)

Checking values in brackets

11.85

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A5

45

Test Specifications Fuel Injection Pumps ① and Governors

PES 5 A 95 D 410 LS 2426 RQV 250-1150 AB 850 DL

Komb.-Nr. 0 400 845 013 = MAN-Nr. 1-7619

1 - 3 - 5 - 4 - 2 je $72^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes
company: MAN
D 2555 MX/MXF
engine: 141 kW/2300 min⁻¹

0 400 845 013
 1-7619
 1-3-5-4-2 je
 72° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $(1,25-1,45)$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1170	14,4-17,4	-	-	-	ca. 13	50	7,7-11,0	200	0,5-1,2
	1220	9,0-14,0					150	6,6- 9,8	480	3,2-4,0
	1280	1,0- 7,8					250	4,2- 7,2	800	5,0-5,4
	1350	0					350	0 - 3,4	1180	8,4
							410	0		

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	114,5-116,5 (112,5-118,5)	1190-1205*	800	114,0-117,0 (112,0-119,0)	100	146,5-156,5	1100	-
			500	max. 113,5 (max. 115,5)	250	7 mm RW Change-over point 180-100 min ⁻¹	500	0,3-0,5

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps ① and Governors

PES 5 A 95 D 410 LS 2426 Z RQV 250-1150 AB 850 DL

Komb.-Nr. 0 400 845 021 = MAN-Nr. 1-7555

1 - 3 - 5 - 4 - 2 je $72^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes-

company: MAN

engine: D 2555 M/MF

124 kW/2300 min⁻¹

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,3-1,4 \\ (1,25-1,45) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①				
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	③	rev/min 10	mm 11
ca. 50	1170 1120 1280 1350	14,4-17,4 9,0-14,0 1,0- 7,8 0		-	-	-		ca. 15	50 150 250 350 410	7,7-11,0 6,6- 9,8 4,2- 7,2 0 - 3,4 0	③a	200 480 800 1180	0,5-1,2 3,2-4,0 5,0-5,4 8,4

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤		
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	④a	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	109,5-111,5 (107,5-113,5)	1190-1205*		800 500	112,0-115,0 (110,0-117,0) max. 112,5 (max. 114,5)	100 250	146,5-156,5 =15,7-16,3 mm RW 7 mm RW Change-over point 180-100 min ⁻¹	1100 500	0 0,3-0,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

En

Testoil-ISO 4113

PE 10 A 95 D 610/4 LS 2452 RQV 300-1250 AB 1129 L

supersedes 4.85

company: KHD

engine: F 10 L 413 F

228 kW (310 PS)

2500 min⁻¹

Komb.-Nr. 0 400 649 223

1 - 10 - 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2

0 - 27-72 -99 -144-171-216-243-288-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0 - 2,1}{(1,95 - 2,15)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	10,3+0,1	9,1 - 9,3	0,3(0,6)			
300	6,4-6,6	1,2 - 1,6	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1380	15,2-17,8	-	-	-	ca. 18	100	min.8,0	300	1,2-1,3
ca.51	9,3	1290-1300					300	6,4-6,6	500	2,6-2,9
	4,0	1375-1405							1000	5,4-5,6
	1500	0 - 1,0							1300	7,7-7,8
									1380	8,7

Torque control travel a = 0,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	90,5 - 92,5 (88,5 - 94,5)	1290-1300 *	800	90,0 - 93,0 (88,0 - 95,0)	100	120,0 - 130,0 (117,0-133,0)	1250	10,3+0,
							500	10,5+0,
							940	10,4+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 6,1 e 2

1. Edition

En

PES 6 A 95 D 410 RS 2471
Komb.-Nr. 0 400 876 330

RSV 325-1400 A2C 2205 L

supersedes
KHD
company BF 6 L 913 C
engine 125,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9-2,0$
 $(1,85-2,05)$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	10,9+0,1	8,8-9,0	0,35(0,6)			
325	7,5-7,7	1,0-1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

Test ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 22	325	7,1	1400	10,9-11,0
	x = 4,0						100	min. 19,5	500	10,9-11,1
							325	7,5-7,7		
ca. 58	9,9	1440-1450					625-685	= 2,0		
2a	4,0	1545-1575								
	1675	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle		Control rod travel mm	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
LDA 1400	0,7 bar 88,0-90,0 (86,0-92,0)		LDA 850	0,7 bar 78,5-81,5 (76,0-84,0)	100	115,0-125,0 (112,0-128,0) = 15,6-16,0 mm RW			
			LDA 650	0 bar 64,0-66,0 (62,0-68,0)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

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D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 e 2

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2471 + A2C 2205 L	0,7	0 0,22 0,18	10,9-11,1 10,2-10,3 10,7-10,8 10,5-10,6

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WVP 001/4 MAN 9,2 f 1
2. Edition

En

PES 5 A 95 D 320 LS 2504 RQ 250/1100 AB 1197 R
Komb.-Nr. 0 400 845 079

supersedes 2.85
company: MAN
engine: D 2565 MUL
141 kW/2200 min⁻¹
MAN-Nr. 2-7500

1-3-5-4-2 je 72° ± 0,5° (+ 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,5 - 1,6}
(1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1 100	11,3±0,1	11,4-11,6	0,3(0,6)			
250	6,4-6,6	1,5-2,1	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Test to ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	10,3	1145-1160	250	6,5	100	min. 8,0	1100	11,3-11,4
				4,0	1195-1225			250	6,4-6,6	600	11,7-11,8
				1300	0-1,0			370	410±2,0	940	11,5-11,7
										1015	11,4-11,6

Torque-control travel on flyweight assembly dimension a = 0,40 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
1100	114,0-116,0 (112,0-118,0)	-	800	115,5-118,5 (113,0-121,0)	100	147,0-157,0 (144,0-160,0)
			500	113,0-116,0 (110,5-118,5)		= 13,7-14,3 mm RW
					250	6,5 mm RW

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 7,6 c 2

1. Edition

En

PES 6 A 95 D 410 RS 2522
Komb.-Nr. 9 400 230 014

US-EP/RSV 400-1100 A2B 2055 DL

supersedes
company John Deere
engine 6466 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,85-1,95}{(1,80-2,00)}$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,5+0,1	10,1-10,3	0,3 (0,6)			
400	5,9-6,1	1,2-1,6	0,4 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	mm 9	rev/min 10	mm 11
loose	800	0,3-1,0	-	-	-	ca. 22	400	5,5	1100	10,5+0,1
ca. 43	X =						100	min. 19,0	650	11,7+0,1
	9,5	1150					400	5,9-6,0		
2a	5,2	1200					650-680	= 2,0		
	1350	0-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,8 bar 100,5-102,5 (98,5-104,5)	1150*	LDA 650	0,8 bar 112,5-115,5 (110,5-117,5)	100	165,0-185,0 =19,0-21,0 mm RW	400	6,0
			LDA 550	0 bar 86,0-92,0 (84,0-94,0)	400	12,0-16,0 (10,0-18,0)		

Checking values in brackets

* 1 mm less control rod travel than col 2

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10.85

A12

A12

D. Adjustment Test for Manifold Pressure Compensator

DEE 7,6 c 2

Test at n = **550** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2522 + RSV..A2B2055DL	0,24	0,10	11,3-11,4 10,4-10,8

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 4,1 c 5

1. Edition

En

PES 4 A 80 D 410/3 RS 2523 RSV 325-900 A 1 C 602-2 L
Komb.-Nr. 0 400 864 064

supersedes KHD
company F 4 L 913
engine 43,0 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,9-2,0}{(1,85-2,05)}$ mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
830	12,2+0,1	5,1 - 5,2	0,25 (0,4)			
325	9,3-9,5	0,9 - 1,5	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Loose	800	0,3-0,7	-	-	-	ca. 23	325	8,0	-	-
	X = 3,25						325	7,9 - 8,1		
ca. 46	11,2	920-930					350 - 410 = 2,0**			
2a	4,0	955-985								
	1110	0,3-1,4								

** Set idle-speed auxiliary spring at 2 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
880	50,5 - 51,5 (49,0 - 53,0)	920-930 *	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 6,1 d
5. Edition

En

Testoil-ISO 4113

PES 6 A 80 D410/3 RS2527 EP/RSV 325-1150 A8 B2014DL
Komb.-Nr. 0 400 866 084 A8 G2014 L

supersedes 1.85
company: K H D
engine: F6 L912
74kW (102PS)
2300 min⁻¹
tractor DX 110 -
S 31

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,90-2,00}{(1,85-2,05)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,8+0,1	5,6 - 5,7	0,2(0,35)			
325	8,9-9,1	0,9 - 1,5	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7				ca. 21	325	8,5	1150	11,8+0,1
	$x =$								950	12,0+0,2
							325	8,9-9,1	775	12,5+0,2
ca. 56	10,8	1190-1200					490-550	= 2,0	450	12,5+0,2
⑤	4,0	1255-1285								
	1350	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...	rev/min		rev/min		Control rod travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
1150	56,0 - 57,0 (54,5 - 58,5)	1190-1200 *	775	54,0 - 56,0 (52,0 - 58,0)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 6,1 d 1
2. Edition

En

PES6A 85 D 410 RS 2537 RSV 325-1150 A8B2020 DL
Komb.-Nr. 0 400 876 270 ABC2020 DL

supersedes 2.84
company KHD
engine BF 6 L 913
97 kW/2300 min⁻¹ (1)
tractor DX145-S15
107kW/2300 min⁻¹ (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 -2,0 mm (from BDC)
(1,85-2,05)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,0+0,1	8,0-8,2	0,3(0,45)			
325	6,8-7,0	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Test to ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 21	325	5,0		
ca. 55	10,0	1190-1200					100	min. 19,5		
2a	4,0	1225-1255					325	5,4- 5,6		
	1350	0,3-1,7					510-570	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
(1) LDA 1150	0,7 bar 77,0-78,0 (75,0-80,0)	1190-1200*	LDA 650	0,3 bar 77,0-79,0 (74,5-81,5)	100	120,0-130,0	-	-	
LDA 800	0,5 bar 78,0-81,0 (75,5-82,5)		LDA 500	0 bar 61,0-63,0 (58,5-65,5)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

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A16

A16

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 24	325	6,4	1150	1,0+0,1
	$x = 6,0$						100	min. 19,5	960	1,7+0,2
							325	6,8-7,0	500	2,5+0,1
ca. 60	10,0	1190-1200					590-650	=2,0		
⑤	4,0	1270-1300								
	1435	0,3-1,4								

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitation	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...						
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	
(2) LDA 1150	0,7 bar 79,5 - 31,5 (77,5 - 83,5)	1190-1200*	LDA 800	0,7 bar 88,0 - 91,0 (86,0 - 93,0)	100	120,0-130,0 (117,0-133,0) = 17,4-18,0 mm RW	-	-
			⑥a LDA	0 bar 60,0 - 63,0 (58,0 - 65,0)				

Checking values in brackets

*1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure (g.p.)
increasing

Pump/governor	Setting (g.p.)	Measurement (g.p.)	Control rod travel (1) mm
2537 mit 2020DL	0,70	0,37 0,09 0	12,5 - 12,6 12,2 - 12,3 10,6 - 10,9 10,6 - 10,7

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HAN 10,8 f 1

2. Edition

En

PE 4 A 95 D 420 RS 2556 RSV 350-1100 A 8 B 1120 R
Komb.-Nr. 0 400 674 042 A 8 C 1120 R

supersedes 12.83
company MF-Hanomag
engine D 943

1-2-4-3 je $90^\circ \pm 0,5^\circ (\pm 0,75^\circ)$
** Cold-start test according to VDT-I-420/114

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$ mm (from BDC)
 $(2,10-2,30)$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	10,0+0,1	9,3-9,5	0,3 (0,6)			
400	7,9-8,1	4,0-5,0	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

Testoil ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 21	400	7,5	1100	10,0-10,1
	x = 3,75						100	min. 19,0	1005	10,4-10,6
							400	7,9-8,1	500	10,9-11,0
ca.52	9,0	1140-1150					580-640	=2,0		
2a	4,0	1205-1235					600	max. 1,0		
	1345	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp. 40°C (104°F)	rev/min	cm ³ /1000 strokes	Note: changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	9
1100	93,0-95,0 (91,0-97,0)	1140-1150*		700	100,0-103,0 (98,0-105,0)	100	19,5-21,0 mm RW	-	-
				500	92,0-94,0 (90,0-96,0)		**		

Checking values in brackets

* 1 mm less control rod travel than col 2

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10.85

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HAN 10,8 i 1
2. Edition

En

PE 6 A 95 D 320 RS 2557

RSV 350-1100 A8B1127 R

supersedes 9.83

Komb.- Nr. 0 400 676 159

A8C1127 R

company **MF-Hanomag**
engine D 963 A/1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,15-2,25}{(2,10-2,30)}$ mm (from BDC) RW = 9,0 - 12,0 mm

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	13,2+0,1	12,4-12,5	0,3(0,6)			
350	6,6-6,8	1,4- 2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control rev/min	Control rod travel mm
	mm	mm rev/min	4	5	6		rev/min	mm		
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 19	350	6,2	1100	13,2-13,3
		X = 3,75					100	min. 19,5	450	13,2-13,4
							350	6,6-6,8	400	13,5-13,9
							470-530	= 2,0		
ca. 50	12,2	1140-1150								
2a	4,0	1220-1250								
	1370	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to ..) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	124,0-125,0 (122,0-127,0)	1140-1150*	500	118,0-121,0 (115,5-123,5)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 9,6 n 1

1. Edition

En

PE 6 A 95 D 410 LS 2587
Komb.-Nr. 0 400 646 266

RQV 300-1150 AB 1088 L

supersedes -

company: KHD

engine: F 6 L 413 FW
102,0 kW; 2300 min⁻¹

Tunnelling or mining vehicles

1- 6- 5 - 4 - 3 - 2
0-75-120-195-240-315° ± 0,50° (+ 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,50-1,60
(1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,0-9,2	7,8 - 8,0	0,3(0,6)			
300	6,2-6,3	1,4 - 2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
ca. 68	1150 1350	15,2-17,8 0 - 1,0	-	-	-	ca. 11	100 300 610-670	min. 7,5 5,9-6,1 =2,0	300 600 1190	1,2-1,3 3,1-3,4 8,5
ca. 64	8,0 4,0	1190-1200 1220-1250				320-400 ③a				

Torque control travel a = 0,50 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a	Fuel delivery characteristics high idle speed ⑤a ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤ Control rod travel mm	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
1150	77,5-79,5 (75,5-81,5)	1190-1200 *	800	80,5-82,5 (79,0-84,0)	100	119,0-129,0	1150 800 500	9,0±0,1 9,5±0,1 9,5±0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

Set control-rod stop to contact at 500 min/1

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 n 1

40

1. Edition

En

PE 8 A 95 D 410 LS 2588
Komb.-Nr. 0 400 646 124

RQV 300-1150 AB 1088 L

supersedes -

company: KHD

engine: F 8 L 413 FW

136,0 kW; 2300 min⁻¹

Tunnelling or mining vehicles

1- 8- 7- 2 - 6 - 5 - 4 - 3

0-45-90-135-180-225-270-315° ± 0,50° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,50-1,60
(1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,0-9,2	7,8 - 8,0	0,3(0,6)			
300	6,2-6,3	1,4 - 2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 11	100	min. 7,5	300	1,2-1,3
ca. 64	8,0 4,0 1350	1190-1200 1220-1250 0 - 1,0				320-400	300 610-670	5,9-6,1 =2,0	600 1190	3,1-3,4 8,5

Torque control travel a = 0,50 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	77,5-79,5 (75,5-81,5)	1190-1200*	800	80,5-82,5 (78,5-84,5)	100	119,0-129,0	1150 800 500	9,0+0, 9,5+0, 9,5+0,

Checking values in brackets

* 1 mm less control rod travel than col 2

Set control-rod stop to contact at 500 min/1

10.85

BOSCH

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TECHNISO 4113

A21

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 n 1
1. Edition

En

PE 10 A 95 D 610/4 LS 2589 RQV 300-1150 AB 1047 DL
Komb.-Nr. 0 400 649 219

supersedes -
company: KHD
engine F 10 L 413 FW
170 kW; 2300 min⁻¹

1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2
0-27-72-99-144-171-216-243-288-315° ± 0,50° + (0,75°)

Test ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,50-1,60}{(1,45-1,65)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,1±0,1	7,9 - 8,1	0,3(0,6)			
300	6,2-6,3	1,4 - 2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed				Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1150	15,2-17,8		-	-	-	ca. 11	100	min. 7,5	300	1,2-1,3
ca. 64	8,0 4,0 1350	1190-1200 1230-1260 0 - 1,0					320-410 ③a	300 620-680	6,2-6,3 =2,0	600 1190	3,1-3,4 8,5

Torque control travel a = 0,50 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a	Fuel delivery characteristics high idle speed ⑤a ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤ Control rod travel mm	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
1150	78,5-80,5 (76,5-82,5)	1190-1200 *	800	83,0-86,0 (80,5-88,5)	100	116,5-126,5 (113,5-129,5)	1150 500 895 1030	9,1±0,1 9,6±0,1 9,4±0,2 9,1±0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 12

2. Edition

En

PES 6 A 85 D 410 RS 2591 RSV 325-1150 A 8 C 2020
Komb.-Nr. 0 400 876 320

supersedes 10.84
company KHD
engine BF 6 L 913
117 kW/2300 min⁻¹
tractor DX 7.10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5 - 2,6$ mm (from BDC) RW = $9,0 - 12,0$ mm
(2,45-2,65)

Test ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	12,4+0,1	8,6 - 8,7	0,3(0,45)			
325	7,4-7,6	1,0 - 1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 25	325	7,0	1200	12,4-12,5
	x =	6,0					100	min. 19,5	500	13,5-13,6
ca. 63		1240-1250					325	7,4-7,6	925	12,9-13,1
2a		1350-1380					620-680	= 2,0		
	1515	0,3 - 1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1200	0,7 bar 85,5-86,5 (83,5-88,5)	1240-1250*	LDA 500	0 bar 65,0-67,0 (63,0-69,0)	100	110,0-120,0 (107,0-123,0)	0 -	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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A23

A23

D. Adjustment Test for Manifold Pressure Compensator

KHD 1 g 12

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 A..RS2591 +RSV..A 8 C 2020	0,70	0 0,28 0,11	13,5 - 13,6 12,2 - 12,3 13,2 - 13,3 12,6 - 12,8

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

PE 12 A 95 D 610 LS 2590
Komb.-Nr. 0 400 640 107

RQV 300-1150 AB 1047 DL

supersedes -

company: KHD

engine: F 12 L 413 FW
204 kW; 2300 min⁻¹

1- 4- 9- 8- 5 - 2 - 11- 10- 3 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° ± 0,50° + (0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,50-1,60}{(1,45-1,65)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,1+0,1	7,9 - 8,1	0,35(0,6)			
300	6,4-6,6	1,4 - 1,8	0,3 (0,5)			

Adjust the fuel delivery: from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever mm 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a Degree of deflection of control lever mm 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever mm 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 14	100	min.8,0	300	1,2-1,3
ca. 64	8,1 4,0 1350	1190-1200 1225-1255 0 - 1,0				320-425	300	6,4-6,6	600 190	3,1-3,4 8,5

Torque control travel a = 0,50 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	78,5-80,5 (76,5-82,5)	1190-1200 *	800	83,0-86,0 (80,5-88,5)	100	116,5-126,5 (113,5-129,5)	1150 500 900 1030	9,1+0,1 9,6+0,1 9,4+0,2 9,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 16

2. Edition

En

PES 6 A 85 D 410 RS 2591 RSV 325-1150 A 8 C 2194 L
Komb.-Nr. 0 400 876 326

superseded by 4.85
KHD
company BF 6 L 913
engine tractor DX 7.10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,5-2,6}{(2,45-2,65)}$ mm (from BDC) RW = 9,0 - 12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	12,4+0,1	8,4-8,5	0,3(0,45)			
325	7,4-7,6	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			④ Lower rated speed Control-lever deflection in degrees 7			③ Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3					rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11	
loose	800	0,3-0,7	-	-	-	ca. 17	325	7,0	1200	12,4-12,5
	X = 6,0						100	min. 19,5	500	13,5-13,6
							325	7,4-7,6	925	12,9-13,1
							620-680=2,0			
ca. 54	11,4	1240-1250								
②a	4,0	1350-1380								
	1515	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		⑥ Rotational-speed limit Note: changed to ... rev/min 3		③a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		⑤ cm ³ /1000 strokes 7		④a Idle stop rev/min 8		Control rod travel mm 9
1200	84,0-85,0 (82,0-87,0)	1240-1250*	-	-	100	17,0-17,5 mm RW	-	-				

Checking values in brackets

* 1 mm less control rod travel than col 2

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10.85

B2

B2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 k

3. Edition

En

PES 6 A 85 D 410/3 RS 2592 RQV 300-1250 AB 1089 L
Komb.-Nr. 0 400 836 026

supersedes 9.82
company: KHD
engine: BF 6 L 913

Test ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,2-2,3} (2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,9+0,	9,1-9,2	0,3(0,45)			
300	6,8-7,0	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1250	15,2-17,8	-	-	-	ca. 14	100 300	min.8,4 6,8-7,0	250 550 900 1250	0,5-0,7 3,4-3,6 5,2-5,4 8,1
ca. 68	10,9 4,0 1500	1290-1300 1370-1400 0-1,0				325-500				

Torque control travel a = 0,40 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil-temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1250	0,7 bar 91,0-92,0 (89,0-94,0)	1290-1300*	LDA 300	0,7 bar 86,5-89,5 (84,0-92,0)	100	110,0-120,0 (107,0-123,0)	1250 500 800 975	11,9+0 12,3+0 12,2+0 12,0+0
			LDA 500	0 bar 62,5-65,5 (60,5-67,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 k

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS-2592 + AB 1089 L	0,7	0	12,2-12,3
		0,40	10,8-10,9
		0,28	12,0-12,1
			11,3-11,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

En

PE 8 A 95 D 410 LS 2609 RQV 300-1250 AB 1128 L
Komb.-Nr. 0 400 648 129
1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je 45 ° ±0,5 ° (±0,75 °)

supersedes **9.85**
company: KHD
engine: BF 8 L 413 F
235 kW (320 PS)
2500 min⁻¹

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,8-1,9} (1,75-1,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	11,6+0,1	11,9-12,1	0,35(0,6)			
300	6,6-6,8	1,6-2,2	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm	
1	2	3	4	5	6	7	8	9	10	11	
max.	1300	15,2-17,8	-	-	-	ca. 14	100	min. 8,2	320	1,7-1,8	
ca. 65	10,6	1290-1300					300	6,6-6,8	600	3,0-3,2	
	4,0	1360-1390							1000	5,4-5,6	
	1450	0 - 1,0				315-420			1300	8,5	

Torque control travel a = 0,75 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1250	0,7 bar 119,0-121,0 (117,0-123,0)	1290-1300 *	LDA 750	0,7 bar 124,5-127,5 (122,5-129,5)	100	130,0-140,0 (127,0-143,0) = 14,6-14,8 mm RW	1250	11,6+0,1
			LDA 500	0 bar 105,0-107,0 (103,0-109,0)			750	12,4+0,1
							960	12,2+0,2
							1090	11,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

D. Adjustment Test for Manifold Pressure Compensator

KHD 12,7 n - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 A .. LS2609 + .. AB 1128	0,70	0 0,27 0,23	12,4-12,5 11,7-11,8 12,1-12,2 11,7-11,9 ⊕

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 4,1 d 4

1. Edition

En

PES 4 A 85 D 410/3 RS 2638 RSV 325-1400 A 8 C 540-2 L
Komb.-Nr. 0 400 864 065

supersedes
KHD
company
BF 4 L 913
engine
35,0 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,5-2,6}
(2,45-2,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	11,6+0,1	7,0-7,1	0,3 (0,5)			
325	8,0-8,2	1,0-1,6	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca.21	325	7,7	1250	11,6-11,7
	x = 4,75						100	min.19,5	500	12,2-12,3
							325	8,1-8,3	1000	12,0-12,2
ca.60 2a	10,6	1290-1300					630-690	= 2,0		
	4,0	1390-1420								
	1560	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ..) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7		rev/min 8	Control rod travel mm 9
1250	70,0-71,0 (68,0-73,0)	1290-1300*	800	66,0-68,0 (63,5-70,5)	-	-	-	-	
			1000	66,0-68,0 (63,5-70,5)					

Checking values in brackets

* 1 mm less control rod travel than col 2

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B7

B7

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 4,1 d 1

2. Edition

En

PES 4 A 85 D 410/3 RS 2638 RSV 325-1150 A 2 C 707-2 L

supersedes 8.85

company KHD

Komb.-Nr. 0 400 864 062

engine BF 4 L 913

67 kW/2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,5-2,6} (2,45-2,65) mm (from BDC) RW = 9,0 - 12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,7+0,1	8,2 - 8,3	0,3 (0,45)			
325	8,1-8,3	1,0 - 1,6	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 6	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3 - 0,7	-	-	-	ca. 21	325	7,7	1000	12,7-12,8
ca. 43 ②a	X = 4,25						100	min. 19,5	500	13,7-13,8
	11,7	1040-1050					325	8,1-8,3	800	13,3-13,5
	4,0	1175-1205					655 - 715 = 2,0		900	12,9-13,1
	1340	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limit Note: changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 81,5 - 82,5 (79,5 - 84,5)	1040-1050	LDA 800	0,7 bar 86,5 - 88,5 (84,0 - 91,0)	100	115,0-125,0 (112,0-128,0) = 18,2 - 18,4 mm RW	-	-
			LDA 500	0 bar 61,5 - 63,5 (59,5 - 65,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

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10.85

D. Adjustment Test for Manifold Pressure Compensator

KHD 4,1 d 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 4 A..RS 2638 +RSV..A 2 C 707-2L	0,70		13,7 - 13,8
		0	12,1 - 12,2
		0,45	13,3 - 13,4
		0,29	12,5 - 12,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 19

1. Edition

En

PES 3 A 85 D 410/3 RS 2642

RSV 325-1250 A 2 C 2168-2 L

supersedes

Kornb.-NR. 0 400 863 009

KHD

company F 3 L 913

engine 45,0 kW/2500 min⁻¹
tractor DX 3.50

Testo-ISO 4119

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,5-2,6 \\ (2,45-2,65) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,9+0,1	7,1 - 7,2	0,3 (0,5)			
325	7,9-8,1	0,7 - 1,3	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 22	325	7,5	1250	10,9-11,0
	X = 4,0						325	7,9 - 8,1	800	11,3-11,4
ca. 51	9,9	1290-1300					480 -	540 = 2,0	1045	11,0-11,2
2a	4,0	1365-1395								
	1520	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to ..) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9		
	1250	70,5 - 71,5 (68,5 - 73,5)	1290-1300*	800	62,5 - 64,5 (60,0 - 67,0)	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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B10

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 7,6 b

4. Edition

En

PES 6 A 100 D 410 RS 3034 RSV 600-1100 A 2 B 2080 L

supersedes 10.83

Komb.-Nr. 0 401 276 049

company John Deere

Use overflow valve 1 413 385 007

engine 6.466 AZ-01
152 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,95-2,05 mm (from BDC)
(1,90-2,10)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,7+0,1	12,9-13,1	0,4			
600	4,5-4,7	1,3-1,7	0,4			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 19	600	4,1	-	-
ca. 37	10,7	1145-1155					100	min. 19,0		
2a	4,0	1195-1225					600	4,5-4,7		
	1250	0,3-1,7					635-695	= 2,0		
							800	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 129,0-131,0 (126,5-133,5)	1145-1155*	LDA 500	0 bar 68,5-71,5 (67,0-73,0)	100	170,0-195,0 = 19,0- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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11-85

B11

B.11

D. Adjustment Test for Manifold Pressure Compensator

DEE 7,6 b

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 A ..RS 3034 +RSV..A 2 B 2080L	0,29	0,12	2,65-2,75 0,7-1,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

1A

WPP 001/4 KHD 12,6 b 1
2. Edition

En

PE 8 AM 80 D 310 RS 2004 RSV 200-1150 A 4 B 73 DL
Komb.-Nr. 0 405 078 204

supersedes 10.84
KHD
company F 8 L 714 A
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 mm (from BDC)
(2,10-2,30)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,0	7,4 - 7,8	0,4			
200	9,0	3,9 - 4,7				
	15,0	10,3 - 11,4				
	9,0	2,8 - 3,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 72	1150	16,0	without auxiliary spring			ca. 25	200	6,0	1130	0		
	1200	9,0					100	19,0-21,0			900	0
	1230	4,5					200	5,7- 6,3			700	0,7 - 0,9
2a	1180	11,0-13,0	with auxiliary spring				300	3,6- 5,0	400	1,1 - 1,3		
	1200	7,0-10,5					400	0,4- 3,4				
	1250	2,2- 4,5					550	0- 1,0				
	1350	0 - 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to .) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	72,0 - 73,0 (70,5 - 74,5)		800	75,0 - 77,0 (37,5 - 78,5)	-	-	-	-
			600	75,5 - 77,5 (74,0 - 79,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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10.85

Test ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 12,6 b 2

1. Edition

En

PE 8 AM 80 D 310 RS 2004

RSV 200-1150 A 4 C 73 L

supersedes

Komb.-Nr. 0 405 078 204

company KHD

engine F 8 L 714 A
131,0 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	1,5+0,1	7,2-7,3	0,2(0,35)			
200	8,9-9,1	2,8-3,6	0,35(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
			4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 20	200	7,0	1150	11,5-11,6
ca. 67	x = 4,0						100	min. 19,5	500	12,8-12,9
	10,5	1190-1200					200	7,4-7,6	800	11,9-12,1
	4,0	1230-1260					435-495	= 2,0		
2a	1390	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	72,0-73,0 (70,5-74,5)	1190-1200*	600	75,5-77,5 (74,0-79,0)	-	-	-	-
			800	75,0-77,0 (73,0-79,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

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B14

8.44

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 RVI 8,8p

1. Edition

En

Test ISO 4113

PES 6 MW 100/320 RS 1025
RQ 750 MW 42
0 403 446 154

supersedes _____
company RVI
engine: MIDR 06.02.12
100 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,00-3,10}{(2,95-3,15)}$ mm (from BDC) RW 9-12 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,5+0,1	13,35-13,55	0,35 (0,6)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 6		Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		rev/min 11		Control rod travel mm 12	
						13,5		750-755													
						4,0		795-805													
						0-1		825													
								VH 32 ± 3													

Torque-control travel on flyweight assembly dimension a = _____ mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm 7		Control rod travel mm 8	
700		133,5-135,5 (131,5-137,5)								100		80,0-90,0 (77,0-93,0)			

Checking values in brackets

11.85

B15

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BAS

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7t4

En 1. Edition

Testoil-ISO 413

PE 8 MW 100/720 LS 1117
RQ 300/1150 MW 61
0 403 548 010
1-8-7-2-6-5-4-3 je 45°

supersedes _____
company: KHD
engine: F8L 413 FZ
180 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3, 10-3, 20$ mm (from BDC) RW = 9,0 - 12,0 mm
(3,05-3,25)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
650	13,1+0,1	10,8-11,0	0,35(0,6)			
300	8,5-8,6	1,1-1,5	0,35(0,55)			
1150	11,7+0,1		0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max. 46	550 1350	19,2-20,8 0-1,0				ca. 16	100 300	min. 10 8,5-8,6		
ca. 34	10,7 4,0	1200-1210 1275-1305								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤c		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
650	108,0-110,0 (106,0-112,0)	1200-1210*	1150	98,0-100,0 (95,0-104,0)	100	130,0-140,0 (127,0-143,0)	1150	11,7+0 1
					300	11,0-15,0 (8,5-17,5)	850	12,4+0 3
					100-230	(80-250)	650	13,1+0 1

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ② and Governors

En

Test ISO 4173

PE 8 MW 100/720 LS 1118
RQ 300/1150 MW 63-1
0 403 548 012
1-8-7-2-6-5-4-3 je 45°

supersedes -
company: KHD
engine: BF 8 L 513
225 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,10-3,20$ mm (from BDC) $RW = 9,0 - 12,0$ mm
 $(3,05-3,25)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
650	13,2+0,1	14,3-14,5	0,35 (0,6)			
300	7,0-7,1	1,8-2,2	0,35 (0,55)			
1150	12,1+0,1		0,5 (0,7)			
450	12,0+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	19,2-20,8	650	20,0	11,1	1190-1200			100	min. 8,5	650	13,2-13,3
	VH 46°			4,0	1255-1285			300	7,0-7,1	1150	12,1-12,2
				0-1	1340				330-400	850	12,9-13,1

Torque-control travel on flyweight assembly dimension a = $0,40$ mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 650	0,9 bar 143,0-145,0 (141,0-147,0)		LDA 1150	0,9 bar 134,0-136,0 (132,0-138,0)	100	140,0-150,0 (137,0-153,0)
			LDA 450	0 bar 111,0-113,0 (109,0-115,0)	300	18,0-22,0 (16,0-24,0)

Checking values in brackets

11.85

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1118 mit MW 63-1	0,9	0 0,31 0,42	13,2-13,3 12,0-12,1 12,2-12,3 12,8-12,9

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Note: Test elec. unlocked starting fuel delivery (EES) with 24 Volts.

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 13,4d3
En 1. Edition

Testoil-ISO 4113

PE 8 MW 100/720 LS 1128
RQ 300/1150 MW 63
0 403 548 011
1-8-7-2-6-5-4-3 je 45°

supersedes
company: KHD
engine: BF 8 L 513
225 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,10-3,20}{(3,05-3,25)}$ mm (from BDC) RW = 9-12 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,0+0,1	14,1-14,3	0,35(0,6)			
300	6,5-6,6	1,3-1,7	0,35(0,55)			
1150	2,5+0,1		0,5 (0,7)			
450	1,5+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12				
600	19,2-20,8	600	20,0	11,5 4,0 0-1	1190-1205 1270-1300 1350			300 100	6,5-6,6 min.8,1	700 1150 950	13,0-13,1 12,5-12,6 12,7-12,9				
									330-400						

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
LDA 700	0,99 bar 141,0-143,0 (139,0-145,0)		LDA 1150	0,99 bar 136,0-140,0 (135,0-141,0)	100	135,0-155,0 (132,0-158,0)
			LDA 450	0 bar 107,0-109,0 (105,0-111,0)	300	13,0-17,0 (11,0-19,0)

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting		Measurement		Control rod travel- diminution difference mm (1)
	Gauge pressure =	bar	Gauge pressure =	bar	
LS 1128 mit MW 63	0,99		0 0,30 0,40		13,0-13,1 11,5-11,6 11,8-11,9 12,6-12,7

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4-KHD 13,4d4

En 1. Edition

Testoil-ISO 4113

PE 8 MW 100/720 LS 1128
RQ 300/1150 MW 63-2
0 403 548 014

supersedes
company: KHD
engine: BF 8L 513
235 kW

1-8-7-2-6-5-4-3 je 45°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,10-3,20$ mm (from BDC) RW = 9-12 mm
(3,05-3,25)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,6+0,1	14,1-14,3	0,35(0,6)			
300	6,5-6,6	1,3-1,7	0,35(0,55)			
700	13,6+0,1		0,5 (0,7)			
400	11,3-11,4					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3				Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7		Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Torque control rev/min 11		Control rod travel mm 12
600	19,2-20,8	600	20,0	11,6	1190-1205					300	6,5-6,6	1150	12,6-12,7	700	13,6-13,7		
				4,0	1255-1285					100	min.8,1	950	13,0-13,2				
				0-1	1350							330-400	1100	12,6-12,7			

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /1000 strokes 2	Control rod stop rev/min 3	Fuel delivery characteristics rev/min 4		cm ³ /1000 strokes 5	Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7
LDA 1150	0,9 bar 141,0-143,0 (139,0-145,0)			LDA 700	0,9 bar 153,0-155,0 (151,0-157,0)		100	135,0-155,0 (132,0-158,0)	
				LDA 450	0 bar 107,0-109,0 (105,0-111,0)		300	13,0-17,0 (11,0-19,0)	

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
LS 1128 mit MW 63-2	0,48	0,33 0 0,90	13,0-13,1 12,2-12,5 11,3-11,4 13,6-13,7

Notes:
 (1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 120 A 320 RS 372-1 RQ 250/1100 PA 417 R
Komb.-Nr. 0 401 846 464

supersedes 5.84

company DAF

engine DKS 1160
235 kW

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	10,9+0,1	17,2-17,4	0,5(0,9)			
250	6,2-6,4	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	9,9 4,0 1350	1145-1160 1210-1240 0-1,0	250	6,3	100 250 445-485 = 2,0	min.7,4 6,2-6,4	850 1100	10,9-11,0 10,8-11,0

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
LDA 850	0,7 bar 172,0-174,0 (169,0-177,0)	-	LDA 600	0 bar 130,0-132,0 (127,0-135,0)	100	300,0-340,0 (296,0-344,0) = 19,5-21,0 mm RW

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 i 9

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 372-1 + RQ..PA 417 R	0,70	0	10,9-11,0
		0,30	9,8-9,9
		0,26	10,6-10,7
			10,0-10,4

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PE 6 P 110 A 320 RS 141 RQV 200-1100 PA 103/2R
RS141,Z,Y 250-1100 PA 234/2R

supersedes **7.83**
company **VoIvo**
engine **TD 120**

****** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,6-2,7}
(^{2,55-2,75}) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	17,9 - 18,7	0,6			2,5 [±] 0,1 ** (max. 2,2-2,9)
600	6	3,2 - 4,2				
	12	17,3 - 18,8				
	15	23,5 - 25,3				
200	6	1,1 - 2,1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV .. 103/2R mit 141

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1150	15,5-18,3				ca. 23	100	7,0-10,0	200	1,5-2,3
	1410	0					200	5,0-8,4	500	3,6-4,0
ca. 66	1100	15,0-18,0					300	2,4-5,2	1150	8,3
	1200	7,2-12,6					400	0 -2,2		
	1260	2,0-9,0					460	0	-	-
	1400	0								

Torque control travel a = mm

Caution: abnorm. sldg-sleeve pos'n = 36,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation.	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
LDA 700	0,7 bar 181,0-183,0	1150	LDA 700	0 bar 124,0-127,0	100	390 - 410		
					200	17 - 21 **		
					dispersion max. 2,5			

Checking values in brackets

* 1 mm less control rod travel than col 2

RQV..234/2R with 141

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1170 1400	15,0-18,3 0				ca. 13	100 200	9,0-11,0 7,2-9,9	350 650	1,4-2,0 3,7-4,0
ca. 45	1100 1200 1280 1360	15,0-17,8 6,4-12,0 0 -6,2 0					300 400 490	4,0-6,9 0 -2,8 0	1170	8,3 - -

Torque control travel a = — mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 181,0-183,0 (178,0-186,0)	1160-1170 *	LDA 700	0 bar 124,0-127,0 (121,0-130,0)	100 250	340,0-360,0 11-15 dispersion max. 2,5*		

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

RQV .. 234/2R mit 141Z

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1170 1400	15,0-18,3 0				ca. 13	100 200	9,0-11,0 7,2-9,9	350 650	1,4-2,0 3,7-4,0
ca. 45	1100 1200 1280 1360	15,0-17,8 6,4-12,0 0 -6,2 0					300 400 490	4,0-6,9 0 -2,8 0	1170	8,3 - -

Torque control travel a = — mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 205,0-207,0	1160-1170*	LDA 700	0 bar 124,0-127,0	100 250	390 - 410 11-15 dispersion max. 2,5	**	

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

RQV .. 234/2R with 141Y

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1170	15,0-18,3				ca. 13	100	9,0-11,0	350	1,4-2,0
	1400	0					200	7,2-9,9	650	3,7-4,0
ca. 45	1100	15,0-17,8					300	4,0-6,9	1170	8,3
	1200	6,4-12,0					400	0 -2,8		
	1280	0 -6,2					490	0	-	-
	1360	0								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,7 bar 161,0-163,0	1160-1170	LDA 700	0 bar 116,0-119,0	100	390 - 410		
					250	11 - 15		
						dispersion max. 2,5		

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure CompensatorTest at n = rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm
141 with 103/2R	0,48-0,50	0,12-0,22	- - -
141 with 234/2R	0,90	0 0,51 0,31	11,3 - 11,4 8,8 - 8,9 10,7 - 10,8 9,3 - 9,5
141Z with 234/2R	0,62-0,66	0,14-0,27	- - -
141Y with 234/2R	0,49-0,52	0,14-0,30	- - -

En

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 10,0 a
2. Edition

En

PE 5 P 100 A 720 RS 265 RSV 350-1000 P1/14
Komb.-Nr. 9 400 087 269
1-2-4-5-3 je $72^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes 7.85
company. Daimler-Benz
engine OM 355-5

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC) RW = 9,0 - 12,0 mm

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,9+0,1	11,4 - 11,6	0,35 (0,6)			
350	7,4-7,6	1,5 - 1,9	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3					8	9	10	11	
loose	800	0,3-1,0	-	-	=	ca. 24	350	7,0	-	-
	X =						100	min. 19,0		
ca. 53	11,9	1040-1050					350	7,4-7,6		
2a	4,0	1095-1125					520 - 580	= 2,0		
	1200	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1000	114,0-116,0 (112,0-118,0)	1040-1050*	500	103,0 - 106,0 100,5 - 108,5	100	150,0-170,0 = 18,1-18,5 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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11.85

C4

C4

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 P 110 A 320 RS 372-1 RQ 250/1100 PA 417-1
Komb.-Nr. 0 401 846 463 RQ 250/1100 PA 417

supersedes **6.85**
company: DAF
engine: DKTD 1160
191 kW (260 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,0+0,1	13,7-13,9	0,4(0,75)			
250	6,6-6,8	0,7-1,1	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	11,0	1145-1160 4,0 1220-1250 1350 0 - 1,0	250	6,7	100	min. 7,8 6,6-6,8 460-500 = 2,0	850	12,0-12,1 11,9-12,1

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
LDA 850	0,7 bar 137,0-139,0 (134,5-141,5)	-	LDA 600	0 bar 128,0-130,0 (125,5-132,5)	100	245,0-285,0 (241,0-289,0) = 19,5-21,0 mm RW

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 i 8 - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 6 P..RS372-1 +..PA417-1 oder ..PA 417	0,70	0 0,30 0,28	12,0-12,1 11,5-11,6 11,8-11,9 11,5-11,7

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 k 16

1. Edition

En

PE 6 P 120 A 320 RS 372-1 RSV 250-1100 P 5 A 508-2
Komb.-Nr. 0 401 876 310
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1.680 750 067

supersedes
company DAF
engine DKS 1160
235,0 kW

Testspec 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	10,9+0,1	17,2-17,4	0,5 (0,9)			
250	6,6-6,8	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 24	250	5,8	850	11,1-11,2
		X = 5,0					250	6,2-6,4	400	11,1-11,3
							620-680	= 2,0	300	11,4-11,9
ca. 54	9,9	1140-1150								
2a	4,0	1260-1290								
	1425	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to .., rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 850	0,7 bar 172,0-174,0 (169,0-177,0)	1140-1150*	LDA 600	0 bar 130-132,0 (127,0-135,0)	100	300,0-340 (296,0-344,0)	0 - 0)	- -

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

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C7

C7

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 K 16 - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6P.. RS 372-1 + RSV..P5A508-2	0,7	0 0,36 0,28	10,9-11,0 9,8-9,9 10,6-10,7 10,0-10,4

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

PES 6 P 120 A 720 LS 388 RQV 250-1100 PA 504
Komb.-Nr. 0 402 046 204 = MAN-Nr. 2-7113
0 402 046 205 = MAN-Nr. 2-7111

supersedes
company: MAN
D 2566 MKF
engine: 206 kW/2200 min⁻¹

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,0-3,1}{(2,95-3,15)}$ mm (from BDC) Cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,4+0,1	17,8-18,0	0,5(0,9)			
250	6,2-6,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1500	15,2-17,8	-	-	-	ca. 12	100 250	min. 7,8 6,2-6,4	300 800 1100	1,8-2,1 5,3-5,6 7,9
ca. 66	9,2 4,0 1400	1140-1150 1210-1240 0-1,0				365-480				

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 750	0,7 bar 178,0-180,0 (175,0-183,0)	1140-1150*	LDA 650	0,7 bar 171,0-177,0 (168,0-180,0)	100	205,0-225,0 (201,0-229,0)	750 1100 900	11,4+0,1 10,2+0,1 11,0+0,2
LDA 1100	0,7 bar 160,0-166,0 (157,0-169,0)		LDA 500	0,31 bar 131,0-137,0 (128,0-140,0)	250	12,0-18,0 (9,0-21,0)	1000	10,3+0,3
			LDA 500	0 bar 104,0-106,0				

Checking values in brackets

(101,0-109,0)

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 29

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 388 +RQV..PA 504	0,70	0 0,31 0,43	11,4-11,5 9,2-9,3 10,3-10,4 10,9-11,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 120 A 720 LS 388 RQ 250/1050 PA 658-8
 Komb.-Nr. 0 402 046 266
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

superseded 7.84
 company: MAN
 engine: D 2566 MK 279
 206 kW/2100 min⁻¹
 MAN-Nr. 2-7238

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,0-3,1}{(2,95-3,15)}$ mm (from BDC) Cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	11,8+0,1	18,7-18,9	0,5(0,9)			
250	6,3-6,5	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point ①		Test specifications ④		Setting point		Test specifications ⑤		rev/min 11	Control rod travel mm 12
		rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10		
600 VH =	19,2-20,8 max. 46°	600	20,0	9,7 4,0 1300	1095-1110 1175-1205 0-1,0	250	6,4	100 250 340-380 = 2,0	min.7,9 6,3-6,5	750 1050 870 935	11,8-11,9 10,7-10,8 11,6-11,8 10,9-11,2

Torque-control travel on flyweight assembly dimension a = 0,5 mm Speed regulation: At 1095-1110 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
LDA 750	1,0 bar 187,0-189,0 (184,0-192,0)	-	LDA 650	1,0 bar 178,0-184,0 (175,0-187,0)	100	205,0-225,0 (201,0-229,0)
LDA 1050	1,0 bar 167,0-173,0 (164,0-176,0)		LDA 500	0 bar 113,0-115,0 (110,0-118,0)	250	6,3-6,5 mm RW

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 28

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6P..LS388 + RQ..PA658-8	1,0	0	11,8-11,9
		0,31	9,5-9,6
		0,44	10,5-10,6
			11,2-11,6

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 P 120 A 720 LS 388 RQ 300/1100 PA 658-13
Komb.-Nr. 0 402 046 319

supersedes
MAN
company: D 2566 MLUM/US
engine: 227,0 kW
MAN-Nr. 2-7697

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1.680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,0-3,10 \\ (2,95-3,15) \end{matrix}$ mm (from BDC) Cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	11,6+0,1	18,1-18,3	0,5(0,9)			
300	6,4-6,6	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3			Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Idle speed regulation Setting point rev/min 7		Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Torque control rev/min 11		Control rod travel mm 12
600		19,2-20,8	600	20,0	10,4	1145-1160	300	6,5	100	min. 8,0	750	12,0-12,1	1100	11,4-11,5		
VH	= max. 46°				4,0	1185-1215			300	6,4-6,6	850	11,7-11,9	920	11,4-11,5		
					1400	0-1,0			370-410	= 2,0						

Torque-control travel on flyweight assembly dimension a = 0,20 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2	Control rod stop rev/min 3	Fuel delivery characteristics rev/min 4	cm ³ /-1000 strokes 5	Starting fuel delivery Idle speed rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
LDA 750	1,0 bar	181,0-183,0 (178,0-186,0)	-	LDA 650	1,0 bar	100	225,0-245,0 (221,0-249,0)
LDA 1100	1,0 bar	180,0-184,0 (177,0-187,0)		LDA 500	0,35 bar	300	12,0-18,0 (9,0-21,0)
				LDA 500	0 bar		
					111,0-113,0 (108,0-116,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing
 MAN 11,1 w - 2 -

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 P..LS 388 + RQ..PA 658-13	1,0	0 0,22 0,48	11,6-11,7 9,4-9,5 9,7-9,8 11,0-11,3

Notes:
 (1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 P 120 A 720 LS 388 RQ 300/1100 PA 658-14

Komb.-Nr. 0 402 046 320

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
MAN
company
D 2566 MLUM/CA
engine: 227,0 kW
MAN-Nr. 2-7698

Testoil ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,0-3,1}
(2,95-3,15) mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,4+0,1	18,8-19,0	0,5(0,9)			
300	7,0-7,2	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point	Test specifications		Setting point	Test specifications		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	11	12	
600	19,2-20,8	600	20,0	11,1	1145-1160	300	7,1	100	min.8,6	750	12,7-12,8
				4,0	1185-1215			300	7,0-7,2	1100	12,1-12,2
				1400	0-1,0			380-420	2,0	850	12,5-12,7
									-	920	12,1-12,4

Torque-control travel on flyweight assembly dimension a = 0,20 mm

Speed regulation: AI

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
LDA 750	1,0 bar 188,0-190,0 (185,0-193,0)	-	LDA 650	1,0 bar 183,0-189,0 (180,0-192,0)	100	225,0-245,0 (221,0-249,0)
LDA 1100	1,0 bar 190,0-194,0 (187,0-197,0)		LDA 500	0,35 bar 140,0-150,0 (137,0-153,0)	300	12,0-18,0 (9,0-21,0)
			LDA 500	0 bar 110,0-112,0 (107,0-115,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

MAN 11,1 w 1

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 388 + RQ..PA 658-14	1,0	0 0,25 0,58	12,4-12,5 9,7-9,8 10,0-10,1 11,5-11,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 P 120 A 720 LS 388 RQ 300/1100 PA 658-15

Komb.-Nr. 0 402 046 318

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
MAN
company D 2566 MLUH/CA
engine 192,0 kW
MAN-Nr. 2-7700

1 688 901 019

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,0-3,10 \\ (2,95-3,15) \end{matrix}$ mm (from BDC) Cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,1+0,1	15,3-15,5	0,5(0,9)			
300	6,4-6,6	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	9,7	1145-1160	300	6,5	100	min.8,0	750	11,2-11,3
	VH = max. 46°			4,0	1180-1210			300	6,4-6,6	1100	10,7-10,8
				1400	0-1,0			370-410	= 2,0	850	11,0-11,2
										920	10,7-11,0

Torque-control travel on flyweight assembly dimension a = 0,20 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
LDA 750	1,0 bar 153,0-155,0 (150,0-158,0)	-	LDA 650	1,0 bar 147,0-153,0 (144,0-156,0)	100	225,0-245,0 (221,0-249,0)
LDA 1100	1,0 bar 162,0-166,0 (159,0-169,0)		LDA 500	0,35 bar 131,0-141,0 (128,0-144,0)	300	12,0-18,0 (9,0-21,0)
			LDA 500	0 bar 111,0-113,0 (108,0-116,0)		

Checking values in brackets

10.85

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 w 2

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 P..LS 388 + RQ..PA 658-15	1,0	0 0,22 0,35	11,1-11,2 9,7-9,8 10,0-10,1 10,6-10,9

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 120 A 720 LS 388 RQ 300/1100 PA 658-16

Komb.-Nr. 0 402 046 321

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1.680 750 067

supersedes
MAN
company: D 2566 MLUH/US
engine: 177,0 kW
MAN-Nr. 2-7720

Testo 150 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,0-3,10 \\ (2,95-3,15) \end{matrix}$ mm (from BDC) Cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	10,6+0,1	14,5-14,7	0,5(0,9)			
300	6,3-6,5	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3				Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Idle speed regulation Setting point rev/min 7		Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Torque control rev/min 11		Control rod travel mm 12
600	19,2-20,8	600	20,0	8,7	1145-1160	300	6,4	100	min.7,9	750	10,7-10,8	1100	9,7-9,8	870	10,5-10,7	950	9,9-10,2
VH = max. 46°				4,0	1175-1205			300	6,3-6,5			370-410	= 2,0				
				1350	0-1,0				-								

Torque-control travel on flyweight assembly dimension a = 0,45 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 750	1,0 bar 145,0-147,0 (142,0-150,0)	-	LDA 650	1,0 bar 141,0-147,0 (138,0-150,0)	100	225,0-245,0 (221,0-249,0)
LDA 1100	1,0 bar 141,0-145,0 (138,0-148,0)		LDA 500	0,35 bar 130,0-140,0 (127,0-143,0)	300	12,0-18,0 (9,0-21,0)
			LDA 500	0 bar 111,0-113,0 (108,0-116,0)		

Checking values in brackets

10.85

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 w 3

Test at n = **500** rev/min ^{decreasing} pressure - in bar gauge pressure _{increasing}

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 388 + RQ..PA 658-16	1,0	0	10,6-10,7
		0,25	9,6-9,7
		0,32	9,9-10,0
			10,2-10,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

PES 6 P 120 A 720 LS 388 RQV 250-1100 PA 671
Komb.-Nr. 0 402 046 274, 0 402 046 275

superseded by 7.83
company: MAN
engine: D 2566 MK(F)
206 kW/2200 min⁻¹

Test 130 4113

Test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0-3,1$ mm (from BDC) Cyl. 6
 $(2,95-3,15)$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,4+0,1	17,8-18,0	0,5(0,9)			
250	6,2-6,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1130	15,2-17,8	-	-	-	ca. 12	100	min. 7,8	300	1,7-2,0
ca. 63	9,2 4,0 1350	1140-1150 1205-1235 0-1,0					250	6,2-6,4	850 1100	6,0-6,2 8,3
						395-520				

Torque control travel $\alpha = 1,2$ mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 750	0,7 bar 178,0-180,0 (175,0-183,0)	1140-1150*	LDA 500	0,31 bar 131,0-137,0 (128,0-140,0)	100	205,0-225,0 (201,0-229,0)	750	11,4+0,1
LDA 1100	0,7 bar 160,0-166,0 (157,0-169,0)		LDA 500	0 bar 104,0-106,0 (101,0-109,0)			1100	10,2+0,1
							860	11,0+0,2
							990	10,4+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 13

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 388 + RQV..PA 671	0,70	0	11,4-11,5
		0,31	9,2-9,3
		0,43	10,3-10,4
			10,9-11,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

PES 6 P 120 A 720 LS 388 RQV 250-1100 PA 671-1

Komb.-Nr. 0 402 046 277

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

superseded by 83

company, MAN

engine: D 2566 MK
235 kW/2200 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0-3,1$ mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm
(2,95-3,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	13,1+0,1	21,8-22,0	0,5(0,9)			
250	6,3-6,5	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1130	15,2-17,8	-	-	-	ca. 12	100	min. 7,9	300	1,7-2,0
ca. 64	10,3 4,0 1350	1140-1150 1220-1250 0-1,0					250	6,3-6,5	850	6,0-6,2
						395-520			1100	8,3

Torque control travel a = 1,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 750	1,0 bar 218,0-220,0 (215,0-223,0)	1140-1150*	LDA 500	0,34 bar 144,0-150,0 (141,0-153,0)	100	205,0-225,0 (201,0-229,0)	750	13,1+0,1
LDA 1100	1,0 bar 180,0-186,0 (177,0-189,0)		LDA 500	0 bar 102,0-104,0 (99,0-107,0)			1100	11,3+0,1
							860	12,6+0,2
							985	11,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 14

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 388 +RQV..PA 671-1	1,0	0 0,34 0,61	13,1-13,2 9,4-9,5 10,9-11,0 12,5-12,9

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

PES 6 P 120 A 720 LS 388 RQV 250-1050 PA 671-2
 Komb.-Nr. 0 402 046 278
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 7.83
 company: MAN
 engine: D 2566 MK/319
 235 kW/2100 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,0-3,10}{(2,95-3,15)}$ mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,1+0,1	21,8-22,0	0,5(0,9)			
250	6,3-6,5	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

TEST-SPEC 4-13

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1130	15,2-17,8	-	-	-	ca. 12	100 250	min.7,9 6,3-6,5	300 850 1050	1,7- 2,0 6,0-6,2 7,7
ca. 62	10,3 4,0 1300	1090-1100 1180-1210 0-1,0				395-520 ③a				

Torque control travel a = 1,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 750	1,0 bar 218,0-220,0 (215,0-223,0)	1090-1100*	LDA 500	0,34 bar 144,0-150,0 (141,0-153,0)	100	205,0-225,0 (201,0-229,0)	750 1050 850 950	13,1+0,1 11,3+0,1 12,6+0,2 11,7+0,3
LDA 1050	1,0 bar 180,0-186,0 (177,0-189,0)		LDA 500	0 bar 102,0-104,0 (99,0-107,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 15

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 P..LS 388 +RQV..PA 671-2	1,0	0 0,34 0,61	13,1-13,2 9,4-9,5 10,9-11,0 12,5-12,9

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 v 5

1. Edition

En

PE 6 P 110 A 320 RS 407-1 RSV 275-1000 P 5 A 508-5
Komb.-Nr. 0 401 876 305

supersedes
company DAF
engine DKCL 1160
155 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$ mm (from BDC) RW = 9,0 - 12,0 mm
 $(2,75-2,95)$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,3+0,1	14,0-14,2	0,4(0,75)			
275	7,0-7,2	0,9-1,4	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 23	275	6,6	600	12,5-12,6
	X = 4,5						275	7,0-7,2	1000	11,1-11,3
							675-735	= 2,0	750	12,1-12,3
ca. 48	10,1	1040-1050							850	11,4-11,7
2a	4,0	1160-1190								
	1325	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)	Note: changed to ...	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
LDA 600	1040-1050*	LDA 1000	0,7 bar	100	245,0-265,0 (241,0-269,0)	0	-	-	-
		LDA 600	115,0-119,0 (112,0-122,0)	275	9,0-14,0 (6,5-16,5)	0	-	-	-
			0,7 bar						
			139,5-141,5 (137,0-144,0)						
			137,0-139,0 (134,5-141,5)						

Checking values in brackets

* 1 mm less control rod travel than col 2

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11.85

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 v 5

Test at n = **500** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 407-1 + RSV..P 5 A 508-5	0,70	0 0,28	12,3-12,4 12,1-12,2 12,2-12,3

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 o 7

1. Edition

En

PE 6 P 120 A 320 RS 415-1 RSV 250-1000 P5A 508-1
Komb.-Nr. 0 401 876 295
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes...
company DAF
engine DKZ 1160

Technisch 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$
($2,75-2,95$) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	12,5+0,1	20,6-20,8	0,5 (0,9)			
250	6,7-6,9	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 23	250	6,0	850	12,7-12,8
	x = 4,8						250	6,4-6,6	400	12,7-12,8
							660-720=2,0		300	12,9-13,4
ca. 49	11,5	1035-1045								
2a	4,0	1190-1220								
	1350	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 850	0,7 bar 206,0-208,0 (203,0-211,0)	1035-1045*	LDA 600	0 bar 140,0-142,0 (137,0-145,0)	100	305,0-345,0 (301,0-349,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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D5

D5

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 0 7

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 415-1 + RSV..P5A 508-1	0,70	0	12,5-12,6
		0,34	10,3-10,5
		0,26	11,8-11,9
			10,6-11,0

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 o 8

1. Edition

En

PE 6 P 120 A 320 RS 415-1 RSV 250-1100 P5A 508-2
Komb.-Nr. 0 401 876 296
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes...
company DAF
engine DKX 1160

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	11,6+0,1	18,7-18,9	0,5 (0,9)			
250	6,7-6,9	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,7	-	-	-	ca. 23	250	6,0	850	11,8-11,9
	x = 4,8						250	6,4-6,6	400	11,8-12,0
							640-700	=2,0	300	12,1-12,6
ca. 53	10,6	1135-1145								
2a	4,0	1270-1300								
	1430	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		4a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	cm ³ /1000 strokes	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8	9
LDA 850	0,7 bar	187,0-189,0 (184,0-192,0)	1135-1145*	LDA 600	0 bar 140,0-142,0 (137,0-145,0)	100	305,0-345,0 (301,0-349,0)		

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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D7

D7

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 o 8

Test at n = **600** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel: ^{diminution} ^{difference} mm (1)
PE 6 P..RS 415-1 + RSV..P5A 508-2	0,7	0 0,30 0,26	11,6-11,7 10,3-10,5 11,3-11,4 10,8-11,1

Notes:

(1) when n = rev/min and bar (= maximum full-load control rod travel)
 gauge pressure =

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 0 9

1. Edition

En

PE 6 P 120 A 320 RS 415-1 Y RSV 250-900 P5A 508
Komb.-Nr. 0 401 876 294
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
company DAF
engine DKZ 1160 E

Testo-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$ mm (from BDC)
 $(2,75-2,95)$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
875	11,4+0,1	18,2-18,4	0,5 (0,9)			
250	6,7-6,9	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9		
loose	800	0,3-0,7	-	-	-	ca. 21	250	6,0	875	11,4-11,5
	x = 4,3						250	6,4-6,6	600	12,4-12,5
							395-455	=4,0	725	12,0-12,2
ca. 45	10,4	935-945							775	11,7-11,9
2a	4,0	1020-1050								
	1180	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 875	0,7 bar 182,0-184,0 (179,0-187,0)	935-945*	LDA 600	0,7 bar 186,0-192,0 (183,0-195,0)	100	305,0-345,0 (301,0-349,0)	0 -	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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10.85

D9

29

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 0 9

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 415-1 Y + RSV...P5A 508	0,7	0 0,35 0,26	12,2-12,3 10,3-10,5 11,7-11,8 10,7-11,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 o 10

1. Edition

En

PE 6 P 120 A 320 RS 415-1 Z RSV 250-900 P5A 508
Komb.-Nr. 0 401 876 293
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes-
company DAF
engine DKX 1160 E

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$
(2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
875	11,0+0,1	17,1-17,3	0,5 (0,9)			
250	6,7-6,9	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testöl ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 26	250	6,0	875	11,0-11,1
	x = 4,5						250	6,4-6,6	600	11,9-12,0
							395-455	=2,0	725	11,5-11,7
ca. 49	10,0	935-945							775	11,2-11,4
2a	4,0	1020-1050								
	1180	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to . . .	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9			
LDA 875	0,7 bar 171,0-173,0 (168,0-176,0)	935-945*	LDA 600	LDA 600	0,7 bar 172,0-178,0 (169,0-181,0)	100	305,0-345,0 (301,0-349,0)	-	-	-	-
			LDA 600	LDA 600	0 bar 140,0-142,0 (137,0-145,0)						

Checking values in brackets

* 1 mm less control rod travel than col 2

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10.85

D11

D11

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 o 10

Test at n = **600** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..KS 415-1 Z + RSV..P5A 508	0,7	0	11,6-11,7
		0,30	10,3-10,5
		0,26	11,1-11,2
			10,6-10,8

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 o 11

1. Edition

En

PE 6 P 120 A 320 RS 415-1 Z RSV 250-1100 P5A 508-4
Komb.-Nr. 0 401 876 323
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
company DAF
engine DKV 1160

Testbench 415

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
650	11,0+0,1	16,7-16,9	0,5 (0,9)			
250	6,5-6,7	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 24	250	5,8	650	11,2-11,3
	x = 5,0						250	6,2-6,4	1090	9,6-9,8
							650-710	=2,0	825	10,6-10,8
ca. 54	8,6	1135-1145							925	9,9-10,2
2a	4,0	1210-1240								
	1370	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop		
Test oil temp 40°C (104°F)	rev/min	Note: changed to ..) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
	1	2	3	4	5	6	7	8	9
LDA	0,7 bar	-	LDA	0,7 bar	100	320,0-360,0	0	-	-
550	167,0-169,0 (164,0-172,0)		1090	147,0-151,0 (144,0-154,0)		(316,0-364,0)	0	-	-
			LDA	0 bar					
			600	135,0-137,0 (132,0-140,0)					

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

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D13

D13

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 0 11

- 2 -

Test at n = **600** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 415-1 Z + RSV..P5A 508-4	0,7	0 0,29 0,26	11,0-11,1 9,9-10,0 10,7-10,9 10,1-10,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 9,8 a 4

En 2. Edition

PES 6 P 120 A 320 RS 419 RQV 275-1100 PA 495-6
Komb-Nr. 0 402 046 302
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 7.84
company: RVI
engine: MIDR 062030
191 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8 - 2,9}
(2.75 - 2.95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,3-9,4	17,3 - 17,5	0,5 (0,9)			
275	4,6-4,8	1,7 - 2,3	0,8 (1,2)			
Port closing mark 10,5° after port closing cylinder 1						

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1150	15,2 - 17,8	-	-	-	ca. 10	200	min. 5,0	250	1,0-1,2
ca. 65	8,3 4,0 1350	1155 - 1165 1220 - 1250 0 - 1,0					275 290-400	3,2-3,4	475 900 1100	3,5-4,0 6,4-6,6 8,1

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 173,0-175,0 (170,0-178,0)	1155 - 1165*	LDA 700	0,7 bar 159,0-165,0 (156,0-168,0)	100	140,0-160,0 (136,0-164,0)	-	-
			LDA 500	0 bar 93,0-95,0 (90,0-98,0)	275	3,2-3,4 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

RVI 9,8 a 4

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel minution difference mm (1)
PES 6 P RS 419 + RQV..PA 495-6	0,70		9,3 - 9,4
		0	7,2 - 7,3
		0,27	3,7 - 8,8
		0,22	7,9 - 8,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

PES 6 P 120 A 320 RS 419-2 RQV 275-950 PA 698
Komb.-Nr. 0 402 046 293

supersedes 7.84

company: RVI

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

engine: MIDS 062045

129 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing mark 9.5° after port closing cylinder 1

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) RW = 9,0 - 12,0 mm
mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
500	7,9-8,0	10,4-10,6	0,5(0,9)			
275	4,3-4,5	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①		
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1070	15,2-17,8		-	-	-	ca. 8	200	min. 5,1	275	1,5-1,6
ca. 62	6,3 4,0 1200	1010-1020 1045-1075 0-1,0						275	3,3 - 3,5	500	3,8-4,3
							280-395			800	6,4-6,7
										950	7,6

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
500	104,0-106,0 (101,0-109,0)	1010-1020*	950	122,0-128,0 (119,0-131,0)	100	150,0-170,0 (146,0-164,0)	500	7,9-8,0
							950	7,2-7,3
							750	7,5-7,7
					275	3,3-3,5 mm RW	800	7,3-7,6

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

Test Specifications Fuel Injection Pumps ① and Governors

PES 6 P 120 A 320 I.S 429 RQV 250-1100 PA 676
Komb.-Nr. 0 402 046 285

supersedes 7.83
company: MAN
engine: D 2566 MKUL
235 kW/2200 min⁻¹

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1.680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0-3,1$ mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm
(2 95-3 15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,0+0,0	21,5-21,7	0,5(0,9)			
250	6,3-6,5	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1130	15,2-17,8	-	-	-	ca. 12	100 250	min.7,9 6,3-6,5	300 800 1100	1,7-2,0 5,7-5,9 8,3
ca. 64	10,3 4,0 1350	1140-1150 1230-1260 0-1,0				395-520				

Torque control travel a = 1,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F). ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 750	1,0 bar 215,0-217,0 (212,0-220,0)	1140-1150*	LDA 500	0,29 bar 134,0-140,0 (131,0-143,0)	100	205,0-225,0 (201,0-229,0)	750 1100	13,0+0,1 11,3+0,1
1100	177,0-183,0 (174,0-186,0)		LDA 500	0 bar 111,0-113,0 (108,0-116,0)	250	12,0-18,0 (9,0-21,0)	860 985	12,6+0,2 11,7+0,3
650	206,0-212,0 (203,0-215,0)							

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,4 a 2

Test at n = **500** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference mm (1)
	Gauge pressure = bar	Gauge pressure = bar	
PES 6 P..LS 429 + RQV..PA 676	1,0	0	13,0-13,1
		0,29	9,7-9,8
		0,58	10,7-10,8
			12,4-12,7

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

En

PES 5 P 110 A 820 LS 434 RQV 300-1100 PA 594-1

Komb.-Nr. 0 402 045 024

1 - 3 - 5 - 4 - 2 je 72 ° ± 0,5 ° (± 0,75 °)

supersedes 7.83

company: Daimler-Benz

engine: OM 409

135 kW (184 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,0-3,1}
(2,95-3,15) mm (from BDC) Cyl. 5

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,0+0,1	11,0-11,2	0,4(0,8)			
300	8,1-8,3	1,2-1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 40	100	min. 9,5	250	1,0-1,3
ca. 60	10,0	1140-1150				320-435	300	8,0-8,2	530	3,9-4,2
	4,0	1175-1205							820	5,5-5,8
	1300	0 - 1,0							1100	8,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	110,0-112,0 (107,0-115,0)	1140-1150*	600	91,0-93,0 (88,0-96,0)	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2
11.85

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 u 5

1. Edition

En

PE 6 P 110 A 720 RS 441 RSV 250-1200 P 5 A 509-1

Komb.-Nr. 0 401 876 317

supersedes

company DAF

engine DHS 825

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,2+0,1	13,7-14,0	0,4 (0,75)			
250	5,0-5,2	0,7-1,2	0,45 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 24	250	4,6	1000	12,4-12,5
	X = 5,0						250	5,0-5,2	400	12,4-12,6
							525-585	= 2,0	300	12,7-13,2
ca. 58	11,2	1240-1250								
2a	4,0	1330-1360								
	1500	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)									
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9			
LDA 1000	0,7 bar 136,5-139,5 (134,0-142,0)	1240-1250*	LDA 600	0 bar 91,5-94,5 (89,0-97,0)	100	245,0-285,0 - (241,0-289,0)					

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

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D21

327

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 a 5 - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
PE 6 P.. RS 441 + RSV..P5A 509-	0,7	0	12,2-12,3	
		0,36	10,1-10,2	
		0,27	11,7-11,8	
			10,8-11,2	

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

D22

D.2
En

Test Specifications Fuel Injection Pumps ① and Governors

PES 6 P 110 A 820 LS 442 RQV 300-1100 PA 594-4
Komb.-Nr. 0 402 046 229

supersedes 7.84
company: Daimler-Benz
engine: OM 407
176 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,20-3,30} (3,15-3,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,7+0,1	12,9-13,1	0,4(0,75)			
300	7,8-8,0	1,4-2,0	0,45(0,75)			
600	-	Sp.4 u. 5	0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max. ca. 61	1140 10,7 4,0 1300	15,2-17,8 1140-1150 1180-1210 0 - 1,0	-	-	-	ca. 30	100 300	min. 9,5 7,8-8,0	250 530 820 1100	1,0-1,2 3,5-3,7 5,0-5,4 7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	129,0-131,0 (126,5-133,5)	1140-1150*	600	113,0-117,0 (110,0-120,0)	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 8.30 12

1. Edition

En

PE 6 P 100 A 720 RS 447-1 RSV 250-750 P 7A 507-1
Komb.-Nr.0 401 876 299

supersedes
company DAF
engine DHT 825 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,2-3,3 \\ (3,15-3,35) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,7+0,1	14,3-14,5	0,35(0,6)			
250	5,3-5,5	0,9-1,3	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 17	250	5,4	-	-
	x = 3,75						250	5,3-5,5		
ca. 44	11,7	790-795					250-295=2,0**			
2a	4,0	810-825								
	950	0,3-1,7 **	Set idle-speed auxiliary spring at 2 mm control-rod travel.							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ... rev/min	Fuel delivery characteristics		Starting fuel delivery idle		Idle stop	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
750	142,5-144,5 (140,5-146,5)	790-795 *	-	-	250	9,0-13,0 (6,5-15,5)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

PE 6 P 110 A 720 RS 3006 RQV 200-1100 PA 383 KR

Komb.-Nr. 0 401 846 711

supersedes 12.84
Scania
company: DS 1102
engine:

En

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,3-3,4} (3,25-3,45) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	13,0+0,1	15,6-15,8	0,6(0,8)			2,5 [±] 0,1 (2,2-2,9)
225	5,7-5,9	0,9-1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 11	100	min. 7,2	150	0,5-0,8
ca. 63	13,0 4,0 1400	1140-1150 1270-1300 0-1,0					225	5,7-5,9	470	3,7-3,9
							360-420	2,0	780	5,3-5,4
									1100	8,0

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 850	0,9 bar 156,0-158,0 (154,0-160,0)	1140-1150*	LDA 1100	0,9 bar 176,5-179,5 (174,0-182,0)	100	190,0-240,0 =20,0-21,0 mm RW	1100	14,0+0,1
			LDA 500	0 bar 133,0-137,0 (131,0-139,0)			850	13,0+0,1
							600	13,2+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 m 2

-2-

Test at n = 850 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3006 +RQV..PA 383 UR	0,90	0 0,40 0,25	14,0-14,1 11,8-11,9 12,9-13,0 11,9-12,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 6.4.1984
- Start of fuel delivery-engine: 20° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

Test Specifications Fuel Injection Pumps ① and Governors

FE 6 P 120 A 320 RS 3071 RQV 300-1050 PA 371-1
Komb.-Nr. 0 401 846 780
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 3.85
company: Volvo
engine: TD 1206 BM

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,6 - 2,7$ mm (from BDC)
(2,55 - 2,75)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,5+0,1	17,4 - 17,8	0,5 (0,9)			2,5 ± 0,1
300	5,3-5,5	1,7 - 2,1	0,5 (0,7)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	rev/min 10	mm 11
max.	1140	15,2-17,8	-	-	-	ca. 14	100	min. 6,8	250	1,1-1,3
ca. 43	9,5	1105-1115					300	5,3-5,5	520	3,1-3,5
	4,0	1185-1215					380 - 440=2,0		780	5,0-5,3
	1325	0-1,0				③a			1050	7,5

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b		Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	④a	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 174,0-178,0 (172,0-180,0)	1105 - 1115		LDA 1000	0,9 bar 180,5-185,5 (178,0-188,0)	-	-	-	-
				LDA 700	0 bar 148,0-152,0 (146,0-154,0)	300	17,0 - 21,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 f 5

- 2 -

Test at n = **500** rev/min ^{decreasing} pressure - in bar gauge pressure
_{increasing}

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P .. RS 3071 + RQV .. PA 371-1	0,90		10,5 - 10,6
		0	9,1 - 9,2
		0,39	10,3 - 10,4
		0,16	9,4 - 9,6

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 110 A 820 LS 3131
Komb.-Nr. 0 402 046 767

RQ 300/1100 PA 786

supersedes

company: Daimler Benz

engine: OM 427 H
150,0 kW

TEST SPECIFICATIONS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,3-4,4} (4,25-4,45) mm (from BDC) Cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,1+0,1	10,8-11,0	0,4(0,8)			
300	7,2-7,4	1,4-2,0	0,4(0,8)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ③				Idle speed regulation Setting point ④				Torque control ⑤	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,0-14,0	600	13,5	8,1 4,0 1300	1145-1160 1195-1225 0-1,5	300	7,3	100 300 380-420	min.8,8 7,2-7,4 =2,0	1100 600	9,1-9,2 10,1-10,3

Torque-control travel on flyweight assembly dimension a = 0,50 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
1100	108,0-110,0 (105,5-112,5)	500	600	97,0-101,0 (94,0-104,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 110 A 820 LS 3131
Komb.-Nr. 0 402 046 764

RQ 300/1100 PA 779

supersedes

company: Daimler Benz
engine: OM 427 H
177,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,3-4,4}
(4,25-4,45) mm (from BDC) Cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,1+0,1	14,0-14,2	0,4(0,8)			
300	7,1-7,3	1,4-2,0	0,45(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min 1		Full-load speed regulation Setting point Control rod travel rev/min 3				Idle speed regulation Setting point Control rod travel rev/min 7				Torque control Control rod travel rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	Control rod travel mm 12				
19,2-20,8	20,0	10,2	1145-1160	7,2	100	min.8,8	-				
VH = max. 46°		4,0	1180-1210		300	7,1-7,3	-				
		1300	0-1,5		360-400=2,0						

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	140,0-142,0 (137,0-145,0)	-	600	117,0-121,0 (114,0-124,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 110 A 820 LS 3131
Komb.-Nr. 0 402 046 768

RQ 300/1100 PA 789

supersedes
company Daimler Benz
engine: OM 427 H
150,0 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{4,3-4,4}{(4,25-4,45)}$ mm (from BDC) Cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,1+0,1	10,8-11,0	0,4(0,8)			
300	7,2-7,4	1,4-2,0	0,4(0,8)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Control rod travel mm 8	Control rod travel mm 10	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	
600	13,0-14,0	600	13,5	8,1 4,0 1300	1145-1160 1195-1225 0-1,5	300	7,3	100 300 380-420=2,0	min.8,8 7,2-7,4 20=2,0	1100 600	9,1-9,2 10,1-10,3

Torque-control travel on flyweight assembly dimension a = 0,50 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	108,0-110,0 (105,5-112,5)		600	97,0-101,0 (94,0-104,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 UNI 9,5 a

2. Edition

En

PES 6 P 110 A 720 RS 3140 RQV 275-1100 PA 501-2

Komb.-Nr. 0 402 046 757

supersedes 5.85

company: IVECO-UNIC

engine: 8460.21.102

192 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2-3,3}
(3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,7-11,8	14,9-15,2	0,4(0,75)			
275	6,8-7,0	2,2-2,7	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1260	15,2-17,8	-	-	-	ca. 15	100	min.8,3	250	1,0-1,2
ca. 63	10,7 4,0 1400	1140-1150 1245-1275 0-1,0				280-375	275	6,7-6,9	400 850 1100	2,7-3,0 5,0-5,2 6,9

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥	Torque-control travel Control rod travel mm ⑤		
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
LDA 1100	0,7 bar 118,0-121,0 (115,5-123,5)	1140-1150*	LDA 500	0 bar 120,0-140,0 (116,0-144,0)	100	170,0-190,0 (166,0-194,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

UNI 9,5 a

- 2 -

Test at n = **500** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..RS 3140 + RQV..PA 501-2	0,70	0	11,5-11,6
		0,27	10,9-11,0 11,2-11,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

En

Testoil ISO 4113

PES 6 P 110 A 720 RS 3140 RQV 275-1150 PA 501-3
Komb.-Nr. 0 402 046 760

supersedes 5.85
company: IVECO-UNIC
engine: 8460.21.002
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2-3,3} (3,15-3,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,1-11,2	13,8 - 14,1	0,4 (0,75)			
275	6,8-7,0	2,2-2,7	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed				Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	6	7	8	9	10	11
max.	1260	15,2-17,8	2a	-	-	-	ca. 15	100	min.8,4	250	1,0-1,2
ca. 64	10,1 4,0 1400	1190-1200 1275-1305 0-1,0						275	6,8-7,0	400 850 1150	2,7-3,0 5,0-5,2 7,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,7 bar 138,0-141,0 (135,5-143,5)	1190-1200* 105,0-108,0 (102,5-110,5)	LDA 500	0 bar	100	120-140 (116-144)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

UNI 9,5 a 1

Test at n = **500** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..RS 3140 + RQV..PA 501-3	0,70	0 0,27	11,5-11,6 11,0-11,1 11,2-11,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 8 P 110 A 320 LS 3802-10 RQ 300/1150 PA 187-12
Komb.-Nr. 0 401 848 775
1-8-7-2-6-3-5-4 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes
company Daimler Benz
engine: OM 422
206,0 kW

Testo ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{4,0-4,1}{(3,95-4,15)}$ mm (from BDC) cyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,7+0,1	13,0-13,2	0,4(0,8)			
300	7,9-8,1	1,5-2,1	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3				Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7		Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Torque control rev/min 11		Control rod travel mm 12
650	13,0-14,0	650	13,5	10,7 4,0 1350	1195-1210 1240-1270 0-1,5	300	8,1	100 300 420-460=2,0	min.10,2 8,0-8,2	-	-	-	-	-	-	-	

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /1000 strokes 2	Control rod stop rev/min 3	Fuel delivery characteristics rev/min 4		cm ³ /1000 strokes 5	Starting fuel delivery Idle speed rev/min 6		Control rod travel cm ³ /1000 strokes/mm 7
1150	130,0-132,0 (127,5-134,5)			600	108,5-112,5 (105,5-115,5)		100	130,0-150,0 (126,0-154,0)	

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 P 110 A 320 LS 3805 RQ 300/1150 PA 187-6
Komb.-Nr. 0 401 846 749
1 - 6 - 3 - 5 - 2 - 4
0 - 75-120-195-240-315⁰ ± 0,5⁰ (+ 0,75⁰)

supersedes 4.85
company: Daimler-Benz
engine: OM 421
159 kW (216 PS)

Note VDT-I-401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,00-4,10 \\ (3,95-4,15) \end{matrix}$ mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery * cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery ** cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,5+0,1	12,8-13,0	0,4(0,8)	11,7+0,1	13,3-13,5	
300	8,3-8,5	1,2-1,8	0,4(0,7)	7,8-8,0	1,2-1,8	
600	-	C, Sp. 4 u. 5	0,6(0,9)	-	C, Sp. 4 u. 5	

* with return throttle (1)
** without return throttle (2)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control			
Control rod travel mm 2	①	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Control rod travel mm 9	Test specifications Control rod travel mm 10	⑤	rev/min 11	Control rod travel mm 12	③
650	13,2-14,0	650	13,6	11,5 4,0 1350	1195-1210 1240-1270 0 - 1,0	300	8,4	100 300 430-470	min. 10,0 8,3-8,5 =2,0		-	-	

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1195-1210 min 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
(1) 1150	128,0-130,0 (125,0-133,0)	600	600	120,0-124,0 (117,0-127,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

B. Governor Settings

MB 11,0 c 1

Checking of slider PRG check (1)		Full-load speed regulation Setting point (2)				Idle speed regulation Setting point (4)				Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	13,2-14,0	650	13,6	10,7 4,0 1350	1195-1210 1240-1270 0 - 1,5	300	7,9	100 300 410-440	min. 9,5 7,8-8,0 = 2,0	-	-

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm Control rod travel 7
(2) 1150	133,0-135,0 (130,5-137,5)	600	600	112,0-116,0 (109,0-119,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check (1)		Full-load speed regulation Setting point (2)				Idle speed regulation Setting point (4)				Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm Control rod travel 7

En Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PE 8 P 120 A 320 LS 3807-10 RQ 300/1150 PA 546-4
 Komb.-Nr. 0 401 848 760
 1-8-7-2-6-3-5-4 je 45 ° ± 0,5 ° (± 0,75 °)
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 4.85
 company: Daimler-Benz
 engine: OM 422 A
 243 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,0-4,1} (3,95-4,15) mm (from BDC) cyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,7+0,1	15,9-16,1	0,5 (0,9)			
300	5,2-5,4	1,2-1,8	0,8 (1,2)			
750	-	C, Sp. 4 u. 5	0,8 (1,1)			
500						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
Control rod travel mm 2	rev/min 1	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Control rod travel mm 9	Test specifications rev/min 10	Control rod travel mm 11	Control rod travel mm 12
19,2-20,8	600	600	20,0	9,7	1195-1210	300	5,3	100	min. 6,9	150	10,7-10,8
VH= max. 46°				4,0	1250-1280			300	5,2-5,4	750	11,0-11,2
				1350	0 - 1,5			365-415	= 2,0		

Torque-control travel on flyweight assembly dimension a = 0,30 mm Speed regulation: AI 1195-1210 min-1 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1150	0,7 bar 159,0-161,0 (156,0-164,0)	-	LDA 750	0,7 bar 173,5-175,5 (170,5-178,5)	100	140,0-160,0 (136,0-164,0)
			LDA 500	0 bar 138,0-140,0 (135,0-143,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 q 3

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference mm (1)
	Gauge pressure = bar	Gauge pressure = bar	
PE 8P..LS 3807-10 +RQ .. PA 546-4	0	0,45	10,0 - 10,3
		0,50	10,1 - 10,3
			10,5 - 10,7

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 8 P 120 A 320 LS 3807-10 RQ 300/1150 PA 546-6
Komb.-Nr. 0 401 848 770
0 401 848 769

supersedes
company Daimler-Benz
engine: OM 422 A
243,0 kW

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067
1-8-7-2-6-3-5-4 je 45 ° ± 0,5 (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,0-4,1}
(3,95-4,15) mm (from BDC, Cyl. 8)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,5+0,1	15,3-15,5	0,5 (0,9)			
300	5,0-5,2	1,2-1,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9 rev/min 10		Torque control rev/min 11		Control rod travel mm 12	
600	19,2-20,8	600	20,0	9,5	1200-1215	300	5,1	100	min. 6,0	1150	10,5-10,6				
	VH = max. 46 °			4,0	1250-1280			300	5,0-5,2	750	10,8-11,0				
				1350	0 - 1,5			350-390	= 2,0						

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1200-1215 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7	
LDA 1150	0,7 bar 153,0-155,0 (151,0-158,0)					LDA 750	0,7 bar 168,5-170,5 (165,5-173,5)	100	140,0-160,0 (136,0-164,0)				
						LDA 500	0 bar 139,0-141,0 (136,0-144,0)						

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 q 4 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement		Control rod travel - diminution difference mm (1)
		Gauge pressure = bar	Gauge pressure = bar	
PE 8P..LS 3807-10 +RQ..PA 546-6	0	0,40 0,47		10,3-10,5 10,4-10,5 11,0-11,2

Notes:
 (1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 10 P 110 A 320 LS 3808-10 RQ 300/1150 PA 187-3
Komb.-Nr. 0 401 849 700
1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4
0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

supersedes
company Daimler Benz
engine: OM 423
259,0 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ mm (from BDC) Cyl. 10; RW = 9,0 - 12,0 mm
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,2+0,1	12,3-12,5	0,4(0,75)			
300	8,0-8,2	1,6-2,2	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	13,0-14,0	650	13,5	11,2	1195-1210 1235-1265 1350	300	8,1	100	min.10,2 8,0-8,2 460=2,0 max.1,8	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1150	123,0-125,0 (120,5-127,5)		600	116,0-120,0 (113,0-123,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 14,6 r

2. Edition

En

PE 8 P 110 A 320 LS 3813-10 RQ 300/1150 PA 187-3

Komb.-Nr. 0 401 848 764

1-8-7-2-6-3-5-4 je 45 ° ± 0,5 ° (± 0,75 °)

supersedes 3.85

company: Daimler-Benz

engine: OM 422

206 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ mm (from BDC) cyl.8
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,7+0,1	13,3-13,5	0,4(0,8)			
300	7,9-8,1	1,5-2,1	0,4(0,7)			
600	-	C, Sp. 4 u. 5	0,8 (1,1)			

Adjust the fuel delivery from each outlet according to the values in

Test-Spez. 4/85

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	13,0-14,0	650	13,5	10,7 4,0 1350	1195-1210 1230-1260 0 - 1,5	300	8,1	100 300 420-460 = 2,0	min. 9,6 7,9-8,1	-	-

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: $1195-1210 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1150	132,5-134,5 (130,0-137,0)	600	600	109,5-115,5 (106,5-118,5)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

10.85

Test Specifications Fuel Injection Pumps ② and Governors

PE 8 P 120 A 320 LS 3811-10 RQ 300/1150 PA 556-1

supersedes 3.85

Komb.-Nr. 0 401 848 759

company: Daimler-Benz

1-8-7-2-6-3-5-4 je 45 ° ± 0,5 ° (± 0,75 °)

engine: OM 422 A

Values only apply to test nozzle-and-holder assembly

243 kW

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,0-4,1 \\ (3,95-4,15) \end{matrix}$ mm (from BDC) cyl.8

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,4+0,1	16,0-16,2	0,5 (0,8)			
300	5,0-5,2	1,4-2,2	0,8 (1,2)			
600	-	C, Sp. 4 u. 5	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Control rod travel mm 4		Test specifications Control rod travel mm 5		rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
600	19,1-20,8	600	20,0	9,4	1195-1210	300	4,6	100	min. 6,7	-	-												
				4,0	1215-1245			300	5,0-5,2														
				1400	0 - 1,0			360-400	= 2,0														

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1195-1210 min-1 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		Control rod travel cm ³ /1000 strokes/mm 7	
1150	160,0-162,0 (157,0-165,0)	-	-	600	152,0-158,0 (149,0-161,0)	100	125,0-145,0 (121,0-149,0)						

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PES 5 P 120 A 720 LS 7101 RQ 300/1050 PA 690
 Komb.-Nr. 0 402 745 800
 1-3-5-4-2 je 72° ± 0,5° (± 0,75°)
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 1.85
 company: Daimler-Benz
 engine: OM 429 LA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $5,20-5,30$ mm (from BDC) Cyl.5; RW = 9,0 - 12,0 mm
 (5,15-5,35)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	13,8+0,1	20,1-20,3	0,5(0,9)			
300	6,0-6,2	1,2-2,0	0,8(1,2)			
900	-	C, Sp. 4 u. 5	0,8(1,2)			
500						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications Control rod travel mm 5		rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications Control rod travel mm 10		rev/min 11		Torque control Control rod travel mm 12	
600	19,2-20,8	600	20,0	12,8	1095-1110	300	6,1	100	min.7,7	-	-										
VH = max. 46°				4,0	1145-1185			300	6,0-6,2												
				1300	0-1,5			380-420 = 2,0													

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1095-1110 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm 7		Control rod travel mm 9	
LDA 1050	0,7 bar	201,0-203,0 (198,0-206,0)		-	LDA 900	0,7 bar	204,0-208,0 (201,0-211,0)	100	160,0-180,0 (156,0-184,0)						
LDA 600	0,7 bar	197,0-201,0 (194,0-204,0)			LDA 500	0 bar	157,0-159,0 (154,0-162,0)								

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 10,0 c

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PES 5 P..LS 7101 +RQ..PA 690	0,70	0 0,35 0,24	13,8-13,9 11,8-12,0 13,3-13,4 12,2-12,5

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test specifications

Fuel injection pumps and governors

WPP 001/4 MTU 29,9 a 1
2. Edition

En.

PE 8 ZWM 140/120 RS 19/11 RQU 375/1100 ZWA 19 DR
Komb.-Nr. 0 406 038 005

Replaces 12.83
Firm: MTU
Engine: MB 837 A a

1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$
Note VDT-W-Allg./7 !

Governor adjustment according to VDT-I-420/112

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC) $\text{cyl } 1.8$

Rotational speed min ⁻¹	Control-rod travel mm	Fuel delivery Average value cm ³ /1000 strokes	Difference in fuel delivery cm ³ /1000 strokes	Fuel delivery Checking values cm ³ /1000 strokes	Spring pre-tension (torque-control valve)
1	2	3	4	5	
600	18,0	373,0-378,0	11,0 (16,0)	370,0-381,0	
600	9,0	143,0-163,0	14,0 (21,0)	138,0-168,0	-
200	9,0	71,0-91,0	14,0 (21,0)	66,0-96,0	
1080	-	C, Sp. 2	8,0 (12,0)	C, Sp. 2	
375			8,0		

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees	mm	Control-rod travel mm min ⁻¹	Control lever deflection degrees	mm	Control-rod travel mm min ⁻¹	Control lever deflection degrees	mm	Control-rod travel mm min ⁻¹	mm	mm
1	2	3	4	5	6	7	8	9	10	11
max.	500	23,5-24,0	Sliding-block position			22	600	2,1-2,6	500	21,7-22,1
ca. 58	1100	19,0-19,5					150	12,0-14,0	700	20,9-21,5
	1130	15,0-18,0					250	10,4-12,4	1000	19,5-20,0
	1200	6,2-12,4					375	5,6-6,0	1100	19,0-19,5
	1250	0 - 7,8					500	2,3-3,1		
	1350	0 - 1,0				1100	0,4-1,6	900	1,1-2,0	
						1180	0			

Torque control travel $a = 0,8$ mm $\pm 0,05$ Speed regulation: At 1120-1130 min⁻¹ mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Rotational speed	Fuel-delivery characteristics		Strating fuel delivery limitation	
min ⁻¹	cm ³ /1000 strokes	min ⁻¹	min ⁻¹	cm ³ /1000 strokes	min ⁻¹	cm ³ /1000 strokes
1	2	3	4	5	6	7
1080	232,0-236,0 (229,0-239,0)	1220 RW max. 5 mm	900	228,0-236,0 (224,0-240,0)	100	18,0-18,2 mm RW
			700	228,0-236,0 (224,0-240,0)		
			500	216,0-224,0 (212,0-228,0)		

Checking values in brackets

06.84

Testoil-ISO 4113

BOSCH

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Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 12,0 b

En

1. Edition

PES 6 P 120 A 720 LS 7114 RQ 300/900 PA 775
Komb.-Nr. 0 402 746 805
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -
company: Daimler-Benz
engine: OM 447 LA
300,0 kW

Testspec 419

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 5,2-5,3 \\ (5,15-5,35) \end{matrix}$ mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,4+0,1	22,0-22,2	0,5(0,9)			
300	5,0-5,2	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	19,2-20,8	650	20,0	10,2	945-960	300	5,1	100	min.6,7	900	11,2-11,4
VH = max. 46°				4,0	990-1020			300	5,0-5,2	750	12,4-12,6
				1150	0-1,5			370-410	2,0	850	11,8-11,9

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ -1000 strokes 2	rev/min 3	rev/min 4	cm ³ -1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 750	0,75 bar 220,0-222,0 (217,0-225,0)		LDA 900	0,75 bar 197,0-203,0 (194,0-206,0)	100	200,0-220,0 (196,0-224,0)
			LDA 500	0 bar 142,0-149,0 (139,0-152,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 12,0 b

- 2 -

Test at n = **500** rev/min ^{decreasing} pressure - in bar gauge pressure _{increasing}

Pump:governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 P..LS 7114 + RQ..PA 775	0	0,35 0,55	9,4 - 9,6 9,9 -10,1 11,3 -11,5

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test specifications

Fuel injection pumps and governors

WPP 001/4 MTU 37,4 b

13. Edition

En.

PE 10 ZWM 140/120 RS 38/11 RQU 425/1100 ZW 30 DR

Komb.-Nr. 0 406 039 109

Governor adjustment according to VDT-I-420/112

Replaces 11.83

Firm: MTU

Engine: MB 838 Ca M

1- 2- 9- 10- 3 - 4 - 5 - 6 - 7 - 8

0-45-72-117-144-189-216-261-288-333° ± 0,5° (± 0,75°)

Note VDT-W-A11g./7 !

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC) Cyl. 10

Rotational speed min ⁻¹ 1	Control-rod travel mm 2	Fuel delivery Average value cm ³ /1000 strokes 3	Difference in fuel delivery cm ³ /1000 strokes 4	Fuel delivery Checking values cm ³ /1000 strokes 5	Spring pre-tension (torque-control valve)
600	18,0	373,0-378,0	11,0 (16,0)	370,0-381,0	-
600	9,0	143,0-163,0	14,0 (21,0)	138,0-168,0	
200	9,0	71,0-91,0	14,0 (21,0)	66,0-96,0	
1080	-	C, Sp. 2	9,0 (14,0)		
900/550	-	C, Sp. 5	11,0 (16,0)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees 1	mm min ⁻¹ 2	Control-rod travel mm min ⁻¹ 3	Control lever deflection degrees 4	min ⁻¹ 5	Control-rod travel mm 6	Control lever deflection degrees 7	min ⁻¹ 8	Control-rod travel mm 9	min ⁻¹ 10	Control-rod travel mm 11
max.	600	18,0-18,5	Sliding-block position			ca. 27	600	0,5-1,8	700	17,6-18,0
ca. 58	1080	13,2					150	16,5-18,0	900	16,8-17,2
	12,2	1135-1145					350	9,0-12,5	1050	16,5-16,7
	5,0	1205-1235					425	5,3-5,8		
	0	1250-1295			1100		500	1,5-3,5		
					1140-1170	0,2-1,4	800	0,6-1,2		

Torque control travel a = 0,35 mm ± 0,03 Speed regulation: At 1130 min⁻¹ 1mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed	Fuel-delivery characteristics		Starting fuel delivery	
min ⁻¹ 1	cm ³ /1000 strokes 2	min ⁻¹ 3	min ⁻¹ 4	cm ³ /1000 strokes 5	min ⁻¹ 6	cm ³ /1000 strokes 7
1080	316,0-320,0 (313,0-323,0)	-	900	305,0-313,0 (301,0-317,0)	100	18,0-18,2 mm RW
			550	271,0-279,0 (267,0-283,0)	425	51,0-57,0
					High idle speed 1220 RW 3,0-3,1 mm 85,0-105,0	

Checking values in brackets

Shutoff solenoid 0,5-1,5 mm in front of stop.

05.85

Testoil-ISO 4113

Test specifications

Fuel injection pumps and governors

WPP 001/4 MTU 22,4 c

6. Edition

En.

PE 6 ZWM 140/120 RS 38/11 RQU 425/1100 ZWA 37 DR
 Komb.-Nr. 0 406 036 026
 1- 2- 3 - 4 - 5 - 6
 0-45-120-165-240-285° ± 0,5° (± 0,75°)

Replaces 03.84

Firm: MTU

Engine: MB 833 Ea 500

Governor adjustment according to VDT-I-420/112 Note VDT-W-A11g./7 !

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke ^{2,0-2,1} (1,95-2,15) mm (from BDC) cyl .6;

Rotational speed min ⁻¹	Control-rod travel mm	Fuel delivery Average value cm ³ /1000 strokes	Difference in fuel delivery cm ³ /1000 strokes	Fuel delivery Checking values cm ³ /1000 strokes	Spring pre-tension (torque-control valve)
1	2	3	4	5	
600	18,0	373,0-378,0	11,0 (16,0)	370,0-381,0	-
600	9,0	143,0-163,0	14,0 (21,0)	138,0-168,0	
200	9,0	71,0-91,0	14,0 (21,0)	66,0-96,0	
1080		C, Sp. 2	9,0 (14,0)		
550		C, Sp. 5	11,0 (16,0)		
425			12,0		

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees	mm	Control-rod travel mm	Control lever deflection degrees	mm	Control-rod travel mm	Control lever deflection degrees	mm	Control-rod travel mm	min ⁻¹	Control-rod travel mm
1	2	3	4	5	6	7	8	9	10	11
max.	600	18,0-18,5	Sliding-block		position	ca. 27	600	0,5-1,8	-	-
ca. 58	1080	14,8					200	16,5-18,0		
	13,8	1125-1135					350	9,3-13,6		
	1220	max. 5,0					425	ca. 6,0		
	1300	max. 1,0					1100	0,5-1,8		
							1110-1170	0		

Torque control travel a— mm Speed regulation: At 1130 min⁻¹ 1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed	Fuel-delivery characteristics		Starting fuel delivery	
min ⁻¹	cm ³ /1000 strokes	min ⁻¹	Idle	stop	min ⁻¹	mm RW cm ³ /1000 strokes
1	2	3	4	5	6	7
1080	352,0-356,0 (349,0-359,0)	-	550	277,0-295,0 (273,0-299,0)	100	18,0-18,2 mm RW
			425	Idle stop 57,0-63,0	High 1220	idle speed RW 3,0-3,1 mm 85,0-105,0

Checking values in brackets

Shutoff solenoid 0,5-1,5 mm in front of stop.

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05.85

Testoil-ISO 4113

Test specifications

Fuel injection pumps and governors

WPP 001/4 MTU 31.7 g 1

2. Edition

En.

PE 8 ZWM 160 / 100 RS 2001
 Komb.-Nr. 0 406 008 023
 8-1 -2 - 6 - 3 - 4 - 5 - 7
 0-45-90-135-180-225-270-315° ± 0,5° (± 0,75°)

Replaces **9.84**
 Firm: MTU
 Engine: 8 V 396-03
 960 kW

See page 2

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

2,5-2,6(2,45-2,65)

Port closing at prestroke mm (from BDC) Cy1 .8

Testo-ISO 4113

Rotational speed min ⁻¹ 1	Control-rod travel mm 2	Fuel delivery Average value cm ³ /1000 strokes 3	Difference in fuel delivery cm ³ /1000 strokes 4	Fuel delivery Checking values cm ³ /1000 strokes 5	Spring pre-tension (torque-control valve)
1000	18,0	622-636	20 (30)	619-639	
1000	9,0	220-248	28 (42)	215-253	
300	9,0	104-128	16 (24)	99-133	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees 1	mm min ⁻¹ 2	Control-rod travel mm min ⁻¹ 3	Control lever deflection degrees 4	mm min ⁻¹ 5	Control-rod travel mm 6	Control lever deflection degrees 7	mm min ⁻¹ 8	Control-rod travel mm 9	mm min ⁻¹ 10	Control-rod travel mm 11
-	-	-	-	-	-	-	-	-	-	-

Torque control travel a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed	Fuel-delivery characteristics		Starting fuel delivery	
min ⁻¹ 1	cm ³ /1000 strokes 2	min ⁻¹ 3	min ⁻¹ 4	cm ³ /1000 strokes 5	min ⁻¹ 6	cm ³ /1000 strokes 7
Adjust according to the engine records.						

Checking values in brackets

Note:

The fuel-injection pump has a special control rod for the partial cutoff of certain cylinders.

Control-rod travel "0" corresponds to 1.0 mm distance of the control-rod pot from the face-side stop plate.

Test specifications

Fuel injection pumps and governors

WPP 001/4 MTU 31,7 h

2. Edition

En.

PE 8 ZWM 160/100 RS 2006
Komb.-Nr. 0 406 008 018

Replaces 9.84

Firm: MTU

Engine: 8 V 396-03
960 kW

8-1-2-6-3-4-5-7

0-45-90-135-180-225-270-315° ± 0,5° (± 0,75°)

See page 2

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Test bench 413

Port closing at prestroke		2,5-2,6 (2,45-2,65)		mm (from BDC)		cyl. 8	
Rotational speed	Control-rod travel	Fuel delivery	Difference	Fuel delivery	Spring pre-tension		
min ¹	mm	Average value	in fuel delivery	Checking values	(torque-control valve)		
1	2	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes			
		3	4	5			
1000	18,0	622-636	20 (30)	619-639	-		
1000	9,0	220-248	28 (42)	215-253			
300	9,0	104-128	16 (24)	99-133			

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed				Medium rated speed				Lower rated speed			Torque control	
Control lever deflection degrees	mm	Control-rod travel mm	min ¹	Control lever deflection degrees	min ¹	Control-rod travel mm	Control lever deflection degrees	min ¹	Control-rod travel mm	min ¹	Control-rod travel mm	
1	2	3	4	4	5	6	7	8	9	10	11	
-	-	-	-	-	-	-	-	-	-	-	-	

Torque control travel a = mm Speed regulation: At 1 mm less control rod travel!

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed		Fuel-delivery characteristics		Starting fuel delivery	
min ¹	cm ³ /1000 strokes	min ¹	cm ³ /1000 strokes	min ¹	cm ³ /1000 strokes	min ¹	cm ³ /1000 strokes
1	2	3	3	4	5	6	7
Adjust according to the engine records.							

Checking values in brackets

F7

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Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

11.85

F7

Note:

Control-rod travel "0" corresponds to 1.0 mm distance of the control-rod pot from the face-side stop plate.

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 8 P 120 A 320 LS 3807-10 RQ 300/1150 PA 546-5
Komb.-Nr. 0 401 848 761
1-8-7-2-3-5-4 je 45° ± 0,5 ° (± 0,75 °)

supersedes 4.85
company: Daimler-Benz
engine: OM 422 LA

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

Port closing at prestroke (3,95-4,15) ^{4,0-4,1} mm (from BDC) cyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,5+0,1	17,5-17,7	0,5(0,9)			
300	5,4-5,6	1,2-2,0	0,8 (1,2)			
750	-	C, Sp. 4 u. 5	0,8 (1,2)			
500						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	10,5	1195-1210	300	5,5	100	min. 6,5	1150	11,5-11,6
				4,0	1255-1285			300	5,4-5,6	750	11,8-12,0
VH =	max. 46 °			1350	0 - 1,5			365-415 = 2,0			

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ -1000 strokes 2	rev/min 3	rev/min 4	cm ³ -1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1150	0,7 bar 175,0-177,0 (172,0-180,0)	-	LDA 750	0,7 bar 187,0-190,0 (184,0-193,0)	100	140,0-160,0 (136,0-164,0)
			LDA 500	0 bar 137,0-139,0 (134,0-142,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 q 2 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 8 P..LS 3807-10 + RQ.. PA 546-5	0	0,41 0,49	10,2-10,4 10,5-10,6 11,1-11,4

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 8 P 120 A 320 LS 3816-10 RQ 300/1150 PA 511-2
Komb.-Nr. 0 401 848 767
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
company Daimler-Benz
engine: OM 422 LA
276,0 kW

1-8-7-2-6-3-5-4 je 45 ° ± 0,5 (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,0-4,1} (3,95-4,15) mm (from BDC) cyl.8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,6+0,1	18,9-19,1	0,5 (0,9)			
300	4,8-5,0	1,2-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider FRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications Control rod travel mm 5		rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
600	19,1-20,8	600	20,0	10,6	1195-1210	300	4,3	100	min.6,0	-	-												
VH = max. 46 °				4,0	1250-1280			300	4,2-4,4					335-375 = 2,0									

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1195-1210 min-10 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm 7	
LDA 900	0,7 bar 189,0-191,0 (186,0-194,0)					LDA 1150	0,7 bar 185,0-189,0 (182,0-192,0)			100	140,0-160,0 (136,0-164,0)		
						LDA 600	0,7 bar 182,0-186,0 (179,0-189,0)						
						LDA 500	0 bar 139,0-141,0 (136,0-144,0)						

Checking values in brackets

Tested 4113

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 u - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P..LS 3816-10 + RQ..PA 511-2	0,7	0,44 0,34 0	11,6-11,7 11,1-11,3 10,3-10,4 10,1-10,2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 14,6 t

1. Edition

En

PE 8 P 110 A 320 LS 3813-10 RSV 350-1150 P 0 A 810-2
Komb.-Nr. 0 401 878 705

supersedes
Daimler-Benz
company OM 422
engine 206,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,00-4,10 mm (from BDC) cyl.8
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1130	11,7+0,1	12,7-12,9	0,4 (0,8)			
350	7,7-7,9	1,4-1,8	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,4	-	-	-	ca. 26	350	7,1	-	-
	X =						100	min. 19,5		
ca. 54 2a	10,7	1175-1185					350	7,0-7,2		
	4,0	1235-1265								
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1130	127,0-129,0 (124,5-131,5)	1175-1185*	600	103,5-107,5 (100,5-110,5)	100	130,0-150,0 (126,0-154,0)		

Checking values in brackets

* 1 mm less control rod travel than col 2

F13

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10.85

F13

Test Specifications Fuel Injection Pumps ② and Governors

PE 8 P 120 A 320 LS 3811-11 RQ 300/1150 PA 556-1
 Komb.-Nr. 0 401 848 772
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067
 1-8-7-2-6-3-5-4 je 45° ± 0,5° (± 0,75°)

supersedes-
 company: Daimler Benz
 engine: OM 422 A
 243,0 kW

313 413 013 131

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$
 $(3,95-4,15)$ mm (from BDC) cyl. 8

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	8
1150	10,4+0,1	16,0-16,2	0,5(0,9)			
300	5,0-5,2	1,4-2,2	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications ④ rev/min	Setting point rev/min	Control rod travel mm	Test specifications ⑤ rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	19,1-20,8	600	20,0	9,4	1195-1210	300	5,1	100	min.6,7	-	-
	VH = max. 46°			4,0	1245-1275			300	5,0-5,2		
				1400	0-1,0			360-400=2,0			

Torque-control travel on flywheel assembly dimension: mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery idle speed ⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm Control rod travel
1	2	3	4	5	6	7
1150	160,0-162,0 (157,0-165,0)		600	152,0-158,0 (149,0-161,0)	100	140,0-160,0 (136,0-164,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PE 8 P 120 A 320 LS 3811-10 RQ 300/1150 PA 556-2
 Komb.-Nr. 0 401 848 765
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067
 1-8-7-2-6-3-5-4 je 45° ± 0,5° (± 0,75°)

supersedes
 company: Daimler Benz
 engine: OM 422 A
 220,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,0-4,1}
 (3,95-4,15) mm (from BDC) cyl.8; RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,5+0,1	14,8-15,0	0,5(0,9)			
300	4,9-5,1	1,4-2,2	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications Control rod travel mm 5		rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
600	19,1-20,8	600	20,0	8,5	1195-1210	300	5,0	100	min. 5,7	-	-	300	4,9-5,1	360-400	2,0								
VH = max. 46°				4,0	1245-1275	1400	0-1,0																

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm Control rod travel 7	
1150	148,0-150,0 (145,0-153,0)					500	143,0-147,0 (140,0-150,0)	100	135,0-155,0 (131,0-159,0)				

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PE 8 P 120 A 320 LS 3807-10 RQ 300/1150 PA 546-7
Komb.-Nr. 0 401 848 776
0 401 848 768

supersedes:
company: Daimler-Benz
engine: OM 422 LA
276,0 kW

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067
1-8-7-2-6-3-5-4 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$
(3,95-4,15) mm (from BDC) Cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8+0,1	17,7-17,9	0,5(0,9)			
300	5,4-5,6	1,2-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	10,8	1195-1210	300	5,5	100	min.6,5	1150	11,8-11,9
VH = max. 46°				4,0	1255-1285			300	5,4-5,6	750	12,2-12,3
				1350	0-1,5			365-415	= 2,0	900	12,0-12,2

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1150	0,7 bar 177,0-179,0 (174,0-182,0)	-	LDA 750	0,7 bar 190,0-193,0 (187,0-196,0)	100	140,0-160,0 (136,0-164,0)
			LDA 500	0 bar 141,0-143,0 (138,0-146,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 q 5

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P..LS 3807-10 + RQ..PA 546-7	0	0,40 0,55	10,5-10,7 11,1-11,2 12,0-12,2

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 110 A 820 LS 3131
Komb.-Nr. 0 402 046 750

RQ 300/1100 PA 722

supersedes
Daimler Benz
company: OM 427 H
engine: 150,0 kW

313100413

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4.3-4.4} (4,25-4,45) mm (from BDC) Cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,4+0,1	11,0-11,2	0,4(0,8)			
300	7,2-7,4	1,4-2,0	0,4(0,8)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,0-14,0	600	13,5	8,4 4,0 1300	1145-1160 1195-1225 0-1,5	300	7,3	100 300 380-420	min.8,8 7,2-7,4 20=2,0	1100 500 850 950	9,4-9,5 10,2-10,4 9,8-10,1 9,6-9,8

Torque-control travel on flyweight assembly dimension a =

0,50

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	110,0-112,0 (107,0-114,5)		500	96,0-100,0 (93,0-103,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 17,4 a 6

1. Edition

En

PE 10 P 110 A 520/5 LS 846 RQ 250/1150 PA 659-4
Komb.-Nr. 0 401 849 182

supersedes
MAN
company:
D 2540 MTF
engine:
310,0 kW
MAN-Nr. 2-7371

1-8 - 7- 6- 3 - 5 - 2 -10 - 9 - 4
6-27-72-99-144-171-216-243-288-315 ° ± 0,5 ° (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,0-3,1} (2,95-3,15) mm (from BDC) Cyl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,5+0,1	13,2-13,5	0,4 (0,75)			
250	7,0-7,2	1,1-1,6	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 5		rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
600	19,2-20,8	600	20,0	10,5	1195-1210	250	7,1	100	min. 8,6	150	11,5-11,6							750	11,5-11,7				
VH =	max. 46 °			4,0	1295-1325			250	7,0-7,2									360-400 = 2,0					
				1450	0 - 1,0																		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ -1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ -1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		Control rod travel cm ³ /1000 strokes/mm 7	
LDA 1150	0,9 bar 132,0-135,0 (129,5-137,5)	-				LDA 750	0,9 bar 122,0-126,0 (119,0-129,0)	100	150,0-170,0 (146,0-174,0)				
						LDA 500	0 bar 115,0-118,0 (112,5-120,5)	250	11,0-16,0 (8,5-18,5)				

Checking values in brackets

10.85

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F19

F19

D. Adjustment Test for Manifold Pressure Compensator

MAN 17,4 a 6 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 10P..LS 846 + RQ PA 659-4	0,9	0 0,32	11,5-11,6 11,1-11,2 11,3-11,4

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 10,0 e
1. Edition

En

PE 5 P 110 A 720 RS 479 RQ 300/1050 PA 718-1
Komb.-Nr. 9 400 087 308

supersedes -
company: Daimler-Benz
engine: OM 355-5 A
170,0 kW

Technical 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,35-3,45}
(3,30-3,50) mm (from BDC) Cyl.1; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1050	12,9+0,1	17,0 - 17,2	0,4 (0,75)			
300	6,4-6,6	0,8 - 1,3	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point	Test specifications			Setting point	Test specifications			rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	11,9	1095-1110	300	6,5	100	min. 8,5	1050	12,9-13,0
VH = 49°				4,0	1160-1190			300	6,4- 6,6	600	13,5-13,6
				1300	0-1,0			380-	420= 2,0	800	13,3-13,5
										950	13,1-13,3

Torque-control travel on flyweight assembly dimension a = 0,35 mm Speed regulation: At 1095 - 1110 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
LDA	0,7 bar		LDA	0,7 bar	100	160,0 - 180,0
1050	170,0 - 172,0 (167,0 - 175,0)		600	177,0 - 181,0 (174,0 - 184,0)		
			LDA	0,7 bar		
			800	174,0 - 178,0 (171,0 - 181,0)		
			LDA	0 bar		
			500	112,5 - 115,5 (110,0 - 118,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 10,0 e

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 5 P..RS 479 + RQ..PA 718-1	0,7	0	13,5 - 13,6
		0,47	10,5 - 10,6
		0,30	12,9 - 13,0
			11,4 - 11,6

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 720 RS 476 RQ 300/1000 PA 718
Komb.-Nr. 9 400 087 302

supersedes -
company: Daimler-Benz
engine: OM 355 LA
235,0 kW

Testo-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,35-3,45$ mm (from BDC) $(3,30-3,50)$ $Cy1.1; RW = 9,0-12,0$ mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	13,2+0,1	19,1 - 19,3	0,4 (0,75)			
300	6,0-6,2	1,3 - 1,9	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	12,2	1045-1060	300	6,1	100	min. 8,0		
VH = 49°				4,0	1100-1130			300	6,0- 6,2		
				1250	0-1,0			410 -	450= 2,0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At $1045 - 1060 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1000	0,7 bar 191,0 - 193,0 (188,0 - 196,0)		LDA 600	0,7 bar 186,0 - 190,0 (183,0 - 193,0)	100	160,0 - 180,0
			LDA 500	0 bar 112,5 - 115,5 (110,0 - 118,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 11,6 c

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 476 + RQ..PA 718	0,7	0 0,47 0,30	13,2 - 13,3 10,0 - 10,1 12,7 - 12,8 11,4 - 11,7

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,8 f 1

1. Edition

En

PE 6 P 110 A 720 RS 371-1
Komb.-Nr. 0 401 846 398

RQ 300/1100 PA 424 R

supersedes-
company: Daimler Benz
engine: OM 355 A
206,0 kW
 TESTO 413
 OIL
 TEST

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9} (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,7+0,1	16,0-16,2	0,4(0,8)			
300	5,9-6,1	1,4-2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	19,2-20,8	650	20,0	10,7	1145-1160	300	6,2	100	min.8,2	1100	11,7-11,8
VH =	max. 46°			4,0	1195-1225			300	6,1-6,3	650	11,7-11,9
				1350	0-1,0			410-450	=2,0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1100	0,7 bar 160,0-162,0 (157,5-164,5)	-	LDA 600	0,7 bar 156,0-160,0 (153,0-163,0)	100	140,0-160,0 (136,0-164,0)
			LDA 500	0 bar 135,0-137,0 (132,0-140,0)		

Checking values in brackets

10.85

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G1

61

D. Adjustment Test for Manifold Pressure Compensator

MB 11,8 f 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 371-1 mit RQ..PA 424 R	0,7	0 0,39 0,35	11,7-11,8 11,0-11,1 11,5-11,6 11,2-11,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 1,8 r 4

3. Edition

En

PES 4 A 50 D 410 RS 1025 RSV 650-1200 A 5 B 729 L (1)
 Komb.-Nr. 0 400 474 154 (1) A 5 C 729 L (2)
 0 400 474 155 (2)

supersede 4.85
 company Daimler-Benz
 engine OM 636
 34 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,65-1,85) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1180	13,6+0,1	2,9 - 3,0	0,2(0,25)			
650	9,7-10,3	1,1 - 1,2	0,15(0,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	1000	0,3-0,7	-	-	-	ca. 32	650	6,8	1180	13,6-13,7
	x = 4,5						100	min. 19,5	400	14,5-15,1
							650	7,2-7,4	500	13,6-13,8
ca. 57	12,6	1220-1230					760-820	= 2,0		
2a	4,0	1330-1360								
	1450	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to .)							
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1180	29,0 - 30,0 (28,0 - 31,0)	1220-1230*	-	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Testöl: SO 4113

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11.85

G3

63

Test Specifications Fuel Injection Pumps ① and Governors

En

PES 6 A 80 C 410 RS 2085 X

RQV 300-1425 AB 615 DL

supersedes 10.84

D

company: Daimler-Benz

Komb.-Nr. 0 400 846 186

engine: OM 352

66 kW

Test 30 410

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	8,0+0,1	3,9-4,0	0,25(0,4)			
300	7,4-7,6	1,2-1,6	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1420	15,2-17,8	-	-	-	ca. 12	100	min.8,5	300	0,7-1,2
ca. 66	7,0	1440-1450					300	7,4-7,6	550	2,7-3,0
	4,0	1490-1520				400-550			775	4,1-4,6
	1650	0-1,0							950	5,2-5,5
									1460	8,5

Torque control travel a = 1,7 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	39,0-40,0 (37,5-41,5)	1440-1450*	500	40,0-42,0 (38,0-44,0)	100	71,0-81,0 (68,0-84,0)	1400	8,0+0,1
							500	9,6+0,1
							675	9,0+0,2
							900	8,3+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 5.7 m 2

1. Edition

En

PES 6 A 80 D 410 RS 2085 x EP/RSV 350-1300 A2B 1102 DL
Komb.-Nr. 9 400 093 209

supersedes -
company Daimler-Benz
engine OM 352

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1280	8,3-8,4	3,7-3,8	0,25(0,4)			
200	8,9-9,1	1,8-2,6	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 58	1300	16,0	without auxiliary spring			ca. 24	350	8,0-8,5	1000	0,3-0,7
	1380	11,0					100	19,0-21,0	700	1,4-1,6
	1450	5,6					350	7,8- 8,2	400	1,4-1,7
ca. 58	1420	6,5-9,0	with auxiliary spring				550	4,2- 5,4		
2a	1500	2,9-4,7					700	2,0- 4,8		
	1680	0,3-1,0					920	0- 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ..) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
	1280	1325-1335*	1000	37,5-39,5 (35,5-41,5)	100	14,2-14,8 mm RW	-	-	
			800	38,5-40,5 (36,5-42,5)					

Checking values in brackets

* 1 mm less control rod travel than col 2

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1.86

G5

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 q 14

1. Edition

En

PES 6 A 90 D 410 RS 2293

RSV 350-1300 A O C 783 L

supersedes -

Komb.-Nr. 0 400 876 255

company Daimler-Benz
engine OM 352 A
110,3 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1300	11,4+0,1	7,6-7,7	0,3 (0,45)			
350	7,3-7,5	1,0-1,4	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	loose	350	7,4	1300	11,4-11,5
	x =						100	min.19,0	800	11,5-11,6
							350	7,3-7,5	1050	11,4-11,6
ca.65	10,0	1340-1350					570-630	=2,0		
2a	4,0	1460-1490								
	1600	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)	Note. changed to ..)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
LDA 1300	0,7 bar 75,5-76,5 (73,5-78,5)			LDA 500	0,7 bar 62,0-64,0 (59,5-66,5)	100	78,0-88,0 (75,0-91,0)	0	-
LDA 800	0,7 bar 67,0-69,0 (64,5-71,5)			LDA 500	0 bar 50,0-52,0 (47,5-54,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

G6

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10.85

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 q 14

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2293 + RSV..AOC 783 L	0,7	0	11,7-11,8
		0,39	10,7-10,8
		0,28	11,4-11,5
			10,9-11,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 q 15

1. Edition

PES 6 A 90 D 410 RS 2293
Komb.-Nr. 9 400 085 283

En
RSV 350-1250 AOB 1150-3 L

supersedes
company Daimler-Benz
engine: OM 352 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,0+0,1	6,2-6,3	0,3(0,45)			
350	7,1-7,3	0,9-1,5	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,8	-	-	-	ca. 20	350	6,7	1250	10,0-10,1
ca. 49 2a	x = 2,5						100	min. 19,0	500	10,0-10,2
	9,0	1290-1300					350	7,1-7,3	400	11,2-11,8
	4,0	1340-1370					430-500 = 2,0			
	1450	0,3-1,7					700	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	61,5-62,5 (59,5-64,5)	1290-1300*	-	-	200	14,2-14,8 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

4.86

G8

BOSCH

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 n 12

2. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 400-1425 AB 1214 L

Komb.-Nr. 9 400 085 247

supersedes 8.85

company: Daimler-Benz

engine: OM 352 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,2-2,3 \\ (2,15-2,35) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6:
1400	11,2+0,1	7,6 - 7,7	0,3 (0,5)			
400	6,9-7,1	1,2 - 1,6	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①		
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1420	16,0-19,4		-	-	-	ca. 16	100	min. 8,5	300	0,7-1,2
ca. 61	10,2	1440-1450						400	6,9-7,1	550	2,7-3,0
	4,0	1560-1590						740-800	=2,0	775	4,1-4,6
	1750	0 - 1,0								950	5,2-5,5
										1460	8,5

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤		
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	④a	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1400	0,2 bar 75,5 - 76,5 (73,5 - 78,5)	1440-1450*		LDA 500	0,2 bar 58,5 - 60,5 (56,0 - 63,0)	100	70,0-80,0 =13,8-14,2 mm RW	-	-
				LDA 500	0 bar 51,0 - 54,0 (49,5 - 56,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 n 12

Test at n = **500** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 A..RS 2293 +RSV..AB 1214 L	0,20	0 0,12 0,09	11,2 - 11,3 10,6 - 10,7 11,0 - 11,1 10,7 - 10,9

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5.7 o 4
1. Edition

En

PES 6 A 90 D 410 RS 2293 RSV 500-900 AOB 2211-1L
Komb.-Nr. 9 400 085 254

supersedes
company Daimler-Benz
engine OM 352

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2.15-2.25}{(2,10-2,30)}$ mm (from EDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
880	10,0+0.1	5,7-5,8	0.3(0,5)			
500	6,4-6,6	1,0-1,4	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0.3-1.0	-	-	-	ca. 24	500	6.5	880	10,0-10,1
ca. 38	x = 2,0						100	min. 19.0	500	10,0-10,2
	9.0	905-910					500	6.4- 6,6	400	11.4-11.6
	4,0	950-955					520-580	2,0		
2a	990	0.3-1.7					700	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
880	57,0-58,0 (55,0-60,0)	905-910*	-	-	100	14.2-14,8 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

1.86

G11

BOSCH

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 m 1

1. Edition

En

PES 4 A 90 D 410 RS 2294 RSV 350-1500 A 2 C 741 L
Komb.-Nr. 0 400 874 221

supersedes
company Daimler-Benz
OM 314
engine 51,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,15-2,25} (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1450	9,1+0,1	5,4-5,5	0,3 (0,5)			
350	7,4-7,6	1,0-1,4	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.21	350	7,5	-	-
ca.60 2a	x = 0,75						100	min. 19,0		
	8,1	1495-1505					350	7,4-7,6		
	4,2	1555-1570					435-495	= 2,0**		
							500	max. 1,0		

** Set idle-speed auxiliary spring at 2 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ..) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1450	54,0-55,0 (52,0-57,0)	1495-1505*	-	-	100	78,0-88,0 (75,0-91,0)	-	-
					350	10,0-14,0 (8,0-16,0)		

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

G12

BOSCH

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 1 i 1
6. Edition

En

PES 6 A 80 D 410/3 RS 2527 RQV 300-1400 AB 951 DL (1-2)
RS 2348 RQ 300/1400 AB 935 DL (3)

supersedes 6.83

company: KHD

F 6 L 913

Instructions for item 2 and 5 RQ 300/1325 AB 935 DL (4,7) (1-2) 96 kW (130PS) / 2800min⁻¹
page 5. RQ 300/1250 AB 935 DL (5-6) (3) 96kW (130PS) / 2800min⁻¹
(8) (4,7) 92kW (125PS) / 2650min⁻¹
(5) 89kW (121PS) / 2500min⁻¹
(6) 77kW (105PS) / 2500min⁻¹
(8) 85kW (115PS) / 2500min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,9 - 2,0}
(1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,5+0,1	6,7 - 6,9	0,2(0,35)			
300	8,0-8,2	1,0 - 1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

.. RS 2527

.. RS 2348 m. RQV..AB 951 (1-2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1470	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	250	0,4-1,0
ca. 65	11,0 4,0 1700	1440-1450 1545-1575 0 - 1,0				410-650	300 530-590=	5,9-6,1 2,0	630 1400	2,8-3,5 4,6-5,0 7,6

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	69,0-70,0 (67,5-71,5)	1440-1450*	700	64,5-66,5 (63,0-68,0)	100	17,3-17,6 mm RW	1400 1150 700	12,0+0,1 12,3+0,3 12,8+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

..RS 2527 u. ..RS 2348 m. KHD 1i1 -2-
RQ 300/1400 AB 935 DL (3)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10		11	12			
700	19,2-20,8	700	20,0	11,0	1445-1460	300	8,5	100 min.	10,0	1400	12,0-12,1				
VH ca. 46°				4,0	1540-1570			300	8,4-8,6	950	12,5-12,8				
				1700	0 - 1,0			600-640	= 2,0mm	700	13,0-13,2				
								750	max. 1,0						

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7
1400	69,0 - 70,0 (67,5 - 71,5)	-		700	64,5-66,5 (63,0-68,0)	-	-

Checking values in brackets

B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1325 AB 935 DL (4,7)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10		11	12			
820	19,2-20,8	820	20,0	11,5	1370-1385	300	6,0	100 min.	7,5	1325	12,5-12,6				
VH ca. 46°				4,0	1460-1490			300	5,9-6,1	775	13,6-13,7				
				1600	0 - 1,0			500-540	= 2,0	875	13,2-13,4				
								700	max. 1,0	1000	12,6-12,9				

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7
1325	68,5-69,5 (67,0-71,0)	700		775	72,5-75,5 (71,0-77,0)	-	-

En Checking values in brackets

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ③				Idle speed regulation Setting point ④				Torque control ⑤	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
800	19,2-20,8	800	20,0	11,5	1295-1310	300	8,5	100	min. 9,5	1250	12,5-12,6
	VH max. 46°			4,0	1375-1405			300	8,4-8,6	910	13,4-13,6
								605-645=2,0		800	13,8-13,9
										1045	12,7-13,0

Torque-control travel on flyweight assembly dimension a = 0,4 mm Speed regulation At 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm Control rod travel 7
1250	66,5 - 67,5 (65,0 - 69,0)	-	800	71,5-73,5 (70,0-75,0)	100	17,4-17,8 mm RW

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ③				Idle speed regulation Setting point ④				Torque control ⑤	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
800	19,2-20,8	800	20,0	10,9	1295-1310	300	8,5	100	min. 10,0	1250	11,9-12,0
	VH ca. 46°			4,0	1360-1390			300	8,4-8,6	950	12,7-12,9
								580-620 = 2,0		800	13,5-13,6
								750	max. 1,0		

Torque-control travel on flyweight assembly dimension a = 0,65 mm Speed regulation At 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm Control rod travel 7
1250	58,0 - 60,0 (56,5 - 61,5)	-	700	53,5 - 56,5 (52,0 - 54,0)	100	17,4-17,8 mm RW

En Checking values in brackets

B. Governor Settings

.. RS 2527 m. RQ 300/1250
AB 935 DL (8)

KHD 1i1 -4-

2

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
800	19,2-20,8 VH = max. 46	800	20,0	9,5 4,0	1295-1310 1360-1390	300	8,5	100 300 580-620= 2,0	min.9,5 8,4-8,6	1250 1200 800 500	10,5-10,6 10,7-10,8 11,4-11,6 11,4-11,6

Torque-control travel on flyweight assembly dimension a = 0,45 mm Speed regulation A 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control rod travel mm 7
1250	60,5-62,5 (58,5-64,5)	-	800	58,5-60,5 (57,0-62,0)	100	17,4-17,8 mm RV
			500	52,0-54,0 (50,5-55,5)		

Checking values in brackets

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12

Torque-control travel on flyweight assembly dimension a = mm Speed regulation. At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control rod travel mm 7

En Checking values in brackets

Notes:

With item 2 - PES 6 A 80 D 410/3 RS 2527 with RQV 300-1400 AB951DL
and item 6 - PES 6 A 80 D 410/3 RS 2527 with RQ 300/1250 AB935DL

an engine code no. instead of the engine output is sometimes given by the customer on the engine nameplate.

These engine code nos. 1025, 1032, 1034, 1035 and 0708 require a reduced full-load delivery:

n 1250 = 57,5 - 59,5 $\text{cm}^3/1000$ strokes
n 850 = 55,5 - 57,5 $\text{cm}^3/1000$ strokes.

From engine no. 6 216 324 the following applies:

n 1250 = 63,5 - 65,5 $\text{cm}^3/1000$ strokes
n 850 = 60,5 - 62,5 $\text{cm}^3/1000$ strokes.

This must at all costs be taken into account when new adjustments and control measurements are made.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 k 3

1. Edition

En

PE 6 A 85 D 320 RS 2546

RSV 250-1300 A 1 C 2200 R

supersedes DAF

Komb.-Nr. 0 400 676 177

company DF 615

engine

Test ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC) ; RW = 7,5 - 10,5 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	10,4+0,1	5,6 - 5,7	0,3 (0,45)			
250	8,1-8,3	1,3 - 1,8	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 21	250	5,5	1000	10,4-10,5
	X = 4,5						250	5,9-6,1	400	10,4-10,6
							470 - 530 = 2,0		300	10,7-11,2
ca. 67	9,4	1340-1350								
2a	4,0	1380-1410								
	1540	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to .)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1000	56,0 - 57,0 (54,0 - 59,0)	1340-1350*	-	-	100	115,0-125,0 112,0-128,0 =19,5-21,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 x 9

1. Edition

En

PES 6 A 90 D 410 RS 2569
Komb.-Nr. 0 400 876 311

RSV 350-1250 AOC 1130-1 L

supersedes
company Daimler Benz
OM 352
engine 92,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,25-2,35$
($2,20-2,40$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,5+0,1	6,7-6,8	0,3(0,45)			
350	8,6-8,8	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	loose	350	8,7	1250	11,5-11,6
ca. 60 2a	10,5	1290-1300					100	min. 19,0	600	12,0-12,1
	4,0	1410-1450					350	8,6-8,8	1050	11,6-11,8
	1550	0,3-1,7					590-650	=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	67,0-68,0 (65,0-70,0)	1290-1300*	600 1050	56,0-58,0 (53,5-60,5) 64,0-68,0 (61,5-70,5)	100	78,0-88,0 (75,0-91,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

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G19

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 u 8

1. Edition

En

PES 6 A 90 D 410 RS 2569 RQV 300-1400 AB 1160 L
Komb.-Nr. 9 407 083 295

supersedes -
company: Daimler-Benz
engine: OM 352

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,2-2,3} (2,15-2,25) mm (from BDC) Cyl. 1; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	10,2+0,1	5,75-5,85	0,3(0,5)			
300	7,9-8,1	7,0-11,0	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 22	100	min. 9,5	300	0,9-1,3
ca. 66	9,2 4,0 1700	1440-1450 1540-1570 0-1,0					300	7,9-8,1	500	2,4-2,7
							570-630=2,0		700	4,0-4,2
									1500	8,6

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	57,5-58,5 (55,5-60,5)	1440-1450*	800	56,0-58,0 (53,5-60,5)	100	73,0-83,0	1400	10,2-10,8
			500	52,5-54,5 (50,0-57,0)			500	11,4-11,5
							800	10,9-11,1
							1100	10,4-10,7

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

PES 4 A 90 D 410 RS 2570 RQV 300-1400 AB 1065-7 L
Komb.-Nr. 0 400 844 086

supersedes 10.84
company: Daimler-Benz
engine: OM 314
63 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,25-2,35}{(2,20-2,40)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	11,0+0,1	6,4-6,5	0,3(0,5)			
300	8,6-8,8	0,9-1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

Testbench 3

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1420	15,2-17,8	-	-	-	ca. 27	100	min. 10,2	300	0,8-1,4
ca. 63	10,0	1440-1450					300	8,6-8,8	800	4,3-4,5
	4,0	1540-1570					545-605	=2,0	1445	8,1
	1700	0-1,0								

Torque control travel s = 0,80 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	64,0-65,0 (62,0-67,0)	1440-1450*	900	64,0-66,0 (61,5-68,5)	100	78,0-88,0 (75,0-91,0)	1400	11,0+0,
							900	11,7+0,
							1150	11,4+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 MB 3,8 n 13

1. Edition

En

PES 4 A 90 D 410 RS 2570
Komb.-Nr. 0 400 874 237

RSV 350-1300 A2C 1126-2 L

supersedes
company Daimler Benz
engine OM 314
55,0 kW

Test ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,25-2,35$ mm (from BDC)
 $(2,20-2,40)$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1300	10,9+0,1	6,0-6,1	0,3(0,45)			
350	8,6-8,8	0,9-1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 14	350	8,2	1300	10,9-11,0
	x = 4,0						100	min.19,5	500	11,6-11,8
							350	8,6-8,8	700	11,2-11,5
							560-620	=2,0		
ca. 46	9,9	1340-1350								
2a	4,0	1420-1450								
	1550	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ..)						
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1300	60,0-61,0 (58,0-63,0)	1340-1350*	500	48,0-52,0 (45,5-54,5)	100	78,0-88,0 (75,0-91,0)	-	-
					350	9,0-15,0 (7,0-17,0)		

Checking values in brackets

* 1 mm less control rod travel than coi 2

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10.85

G22

G22

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 n 14

1. Edition

En

PES 4 A 90 D 410 RS 2570
Komb.-Nr. 0 400 874 227

RSV 350-1200 A2C 1139-1 L

supersedes
company Daimler Benz
engine OM 314
48,0 kW

Test ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,25-2,35 \\ (2,20-2,40) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	10,4+0,1	5,0-5,1	0,3(0,25)			
350	8,8-9,0	0,9-1,3	0,2(0,25)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 21	350	8,0	1200	10,4-10,5
	x = 3,5						100	min.19,0	600	11,7-11,9
							350	8,4-8,6	1050	10,6-10,9
ca. 46	9,4	1230-1240					590-650	=2,0		
2a	4,0	1325-1355								
	1450	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ..) rev/min							
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1200	49,5-50,5 (47,5-52,5)	1230-1240*	500	45,0-47,0 (42,5-49,5)	100	78,0-88,0 (75,0-91,0)	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

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G23

623

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 4,0 b

2. Edition

En

PES 4 A 90 D 410 RS 2666 RQV 300-1400 AOC 2006-1 L
Komb.-Nr. 0 400 874 240
Values apply to fuel-injection test tubing
1 680 750 015

supersedes 7.85
company Daimler-Benz
engine OM 364
66 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,25-2,35$
 $(2,20-2,40)$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1380	10,4+0,1	6,3-6,4	0,3(0,45)			
300	7,8-8,0	0,6-1,0	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	mm	rev/min	mm
loose	800	0,3-1,0	-	-	-	ca. 34	300	7,9	1380	10,4-10,5
ca. 63 2a	x = 4,5						100	min.19,5	500	11,7-11,8
	9,4	1430-1440					300	7,8-8,0	900	11,1-11,3
	4,0	1480-1510					420-480	=2,0		
	1575	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1380	63,0-64,0 (61,0-66,0)	1430-1440*	500	52,0-54,0 (49,5-56,5)	100	78,0-88,0 (75,0-91,0)	300	7,9
					300	6,0-10,0 (4,0-12,0)		

Checking values in brackets

* 1 mm less control rod travel than col 2

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10.85

G24

G24

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 v 16

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2596 + AOC 1148-1 L	0,9	0 0,45 0,24	13,5-13,6 11,5-11,6 12,6-12,7 12,0-12,2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

PES 6 A 100 D 410 RS 2687 RQV400-1000 AB 1203 L
 Komb.-Nr. 0 400 846 536
 Values apply to fuel-injection test tubing
 1 680 750 008

supersedes
 company: Liebherr
 engine: D 906 T
 100 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,7-2,8 \\ (2,65-2,85) \end{matrix}$ mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	11,4+0,1	10,5-10,7	0,35(0,6)			
400	6,3-6,5	1,0-1,6	0,35(0,55)			

Port closing difference between control-rod travel 12 mm and max. 4,0-5,0° camshaft

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1070	15,2-17,8	-	-	-	ca. 14	100 400	min. 7,9 6,3-6,5	375 600 1000 1150	1,0-1,1 3,7-4,0 7,5-7,6 9,9
ca. 62	10,3 4,0 1250	1040-1050 1105-1135 0-1,0				420-530				

Torque control travel a = 1,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 105,0-107,0 (103,0-109,0)	1040-1050*	LDA 700	0,7 bar 118,5-121,5 (116,0-124,0)	100	125,0-135,0 (122,0-138,0) =19,5-21,0 mm RW	1000 500 900	11,4+0,1 12,8+0,1 11,8+0,2
			LDA 500	0 bar 87,5-90,5 (85,5-92,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

LIE 8,4 b

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PES 6 A..RS 2687 +RQV..AB 1203 L	0,70	0 0,40 0,37	12,8-12,9 11,3-11,4 12,4-12,5 11,6-11,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FOR 6,6 g

1. Edition

En

PES 6 A 95 D 412 RS 2709 RQV 350-1400 AB 1202-1 L
Komb.-Nr. 9 400 085 248
Values apply to fuel-injection test tubing 1 680 750 008

supersedes -
company: Ford
engine: 6,6 l NA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,15-3,25}
(3,10-3,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	10,7+0,1	7,9-8,0	0,35(0,6)			
350	6,4-6,6	0,7-1,1	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1420	15,2-17,8	-	-	-	ca. 14	100	min.9,0	350	1,3-1,6
ca. 63	9,7 4,0 1720	1450-1460 1550-1580 0-1,0					350	6,4-6,6	700	4,2-4,6
							560-620=	2,0	1100	6,1-6,4
									1420	8,6

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	79,0-80,0 (77,0-82,0)	1450-1460*	500	60,0-63,0 (57,5-65,5)	100	112,0-122,0 =19,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 6,0 c

1. Edition

En

PES 6 A 90 D 410 RS 2710

RSV 300-1400 A 0 C 2006-2 L

supersedes

company

Daimler-Benz

Komb.-NR. 0 400 876 331

engine

OM 366

100,0 kW

Test ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,25-2,35}{(2,20-2,40)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1380	10,7+0,1	6,5 - 6,6	0,3 (0,45)			
300	7,8-8,0	0,6 - 1,0	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 16	300	8,1	1380	10,7-10,8
	X = 4,5						100	min. 19,5	500	11,9-12,0
ca. 66	9,7	1430-1440					300	8,0-8,2	900	11,3-11,5
2a	4,0	1490-1520					430 - 490	=2,0**		
	1650	0,3-1,7								

** Set idle-speed auxiliary spring at 2 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)	Note. changed to ..)	Note. changed to ..)						
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1380	65,0 - 66,0 (63,0 - 68,0)	1430-1440*	500	53,0 - 55,0 (50,5 - 57,5)	100	78,0-88,0 (75,0-91,0)	-	-
					300	6,0-10,0 (4,0-12,0)		

Checking values in brackets

* 1 mm less control rod travel than col 2

H6

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10.85

H6

Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PES 4 M 55 C 320 RS 152-3
RSF 375/2300 M 55-5
Komb.-Nr. 0 400 074 934
1- 3- 4 - 2
0-90-180-270

supersedes 3.85
company Daimler-Benz
engine OM 601
53 kW
Schweden

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,00-2,10$ mm (from BDC)
(1,95-2,15) Control rod travel
RW = 20,0-22,0 mm

Note: Before starting testing, observe the important instructions on the reverse.

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	11,1+0,1	3,1-3,2	0,25(0,3)			
375	5,4-5,6	0,5-0,6	0,1 (0,15)			
1800			0,25(0,3)			
2200			0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
13-17	① min. 11,5	250	50	⑦ 11,1-11,2	1000		⑫ 100	min. 20,1
	② 5,4-5,6	375		⑧ 7,8-8,2	2500		⑬ 1800	10,8-11,0
	③ 4,4-4,6	400 **		⑨ -			⑭ 2200	10,3-10,5
	④ 1,5	630-730		⑩ 0-1,0	2900			
	⑤			⑪			⑥	Switching point

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load delivery ⑰		Full-load speed regulation ⑱a	Variations in fuel delivery ⑰		Starting fuel delivery idle ⑱		Difference
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	cm ³ /1000 strokes
1	2	3	4	5	6	7	8
2200	33,0-35,0 (32,0-36,0)	2500 * RW = 7,8-8,2	1800	34,0-35,5 (33,0-36,5)	100	min. 55	6,0
					375	5,0-6,0 (4,5-9,0)	1,0
			1000	31,0-32,0 (30,0-33,0)	2500	22,0-26,0 (21,0-27,0)	(1,5) 2,5 See ⑮ (3,0) Point 8 a

Checking values in brackets

*ca. 2,4 less control rod travel than in Column 2

1. **** Checking the idle speed auxiliary spring setting at $n = 400$ rpm, control rod travel (4.3-4.7 mm).**
2. **Setting the idle control lever position:**
At 1000 rpm, control rod travel 0.9 - 1.0 mm.
3. **Checking the idle speed auxiliary spring shut-off**
Control lever position 50° , after change-over point (from starting curve) until 1000 rpm, max. permissible control rod travel 0.2 mm.
Control lever position 48.5° ; after change-over point (from starting curve) control rod travel must be greater than 0.2 mm.
4. **Checking the pneumatic shut-off box**
Control lever on idle stop.
At $n = 375$ rpm and $p_u = 450$ mbar, the control rod must travel rapidly to control rod position = 0 mm.
5. Overflow valve 1 469 990 351,
6. Port closing difference between largest/smallest value max. 1° camshaft angle.
7. **Setting the idle speed control rod travel on the pneumatic idle boost box**
When doing this, release the lock nut.
8. **Checking the pneumatic idle boost:**
With 0.4 bar vacuum, $n = 425$ rpm, control rod travel = (7.0 - 8.6 mm)
Delivery = (13,0-21,0 $\text{cm}^3/1000$ strokes).
9. Apply 0.8 bar vacuum to the pneumatic idle boost box via a three-way valve and a pressure gauge. Using the three-way valve, disconnect the vacuum supply from the pneumatic idle boost box and pressure gauge. Permissible pressure drop 30 mbar in 15 sec.
10. **Start-of-delivery sensor setting**
Start-of-delivery sensor setting and locking according to average port closing value for all cylinders 19.5 ± 0.2 (0.3°) camshaft angle after cylinder 1.
11. **Check intermediate-control cam (control-lever position)**
Control lever 30° , $n = 1000 \text{ min}^{-1}$, control-rod travel 6.3-7.0 mm.

En

Test Specifications Fuel Injection Pumps and Governors

WP001/4 MB 2,5 a
1. Edition

En

Testoil-ISO 4113

PES 5M55C320 RS 153
RSF 350/2300 M55-3
0400 075 986
1-2-4-5-3 je 72

supersedes
company Daimler Benz
engine OM 602
66kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Note: Before starting testing, observe the important instructions on the reverse.

Port closing at prestroke 2,00-2,10 mm (from BDC)
(1,95-2,15) Control rod travel
RW = 20,0-22,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	11,3+0,1	3,15-3,25	0,25(0,3)			
350	5,4-5,6	0,5-0,6	0,10(0,15)			
1800			0,25(0,3)			
2200			0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
13-17	10,0	220	50	11,3+0,1	1000		100	min.20,1
①	5,4-5,6	350	⑦	7,8-8,2	2500		1800	10,9-11,1
②	4,2-4,4	400 **	⑧	-			2200	10,6-10,8
③	-		⑨	0-1,0	2950			
④	1,5	640-740	⑩					
⑤			⑪				⑥	Switching point

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load delivery (19)		Full-load speed regulation (8a)	Variations in fuel delivery (17)		Starting fuel delivery (18)		Difference
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	cm ³ /1000 strokes
1	2	3	4	5	6	7	8
2200	33,5-35,5 (32,5-36,5)	2500*	1800	34,0-35,5 (33,0-36,5)	100	min.55,0	6,0 (12a)
			1000	31,5-32,5 (30,5-33,5)	350	5,0-6,0 (4,5-9,0)	1,0 (15)
					2500	22,0-26,0 (21,0-27,0)	2,5 (16)
							(3,0) See point 8a

Checking values in brackets

*ca. 2,6 less control rod travel than in Column 2

1. **** Checking the idle speed auxiliary spring setting at $n = 400$ rpm, control rod travel (4,1-4,6 mm).**
2. **Setting the idle control lever position:**
At 1000 rpm, control rod travel 0.9 - 1.0 mm.
3. **Checking the idle speed auxiliary spring shut-off**
Control lever position 49° , after change-over point (from starting curve) until 1000 rpm, max. permissible control rod travel 0.2 mm.
Control lever position $46,5^\circ$; after change-over point (from starting curve) control rod travel must be greater than 0.2 mm.
4. **Checking pneumatic shutoff box**
Control lever up against idle stop.
At $n = 350 \text{ min}^{-1}$ and $p_u = 450 \text{ mbar}$ (vacuum) (338 mm Hg) control rod must move briskly to control-rod travel = 0 mm.
5. **Overflow valve 1 469 990 351,**
6. **Port closing difference between largest/smallest value max. 1° camshaft angle.**
7. **Setting the idle speed control rod travel on the pneumatic idle boost box**
When doing this, release the lock nut.
8. **Checking the pneumatic idle boost:**
With 0.4 bar vacuum, $n = 400$ rpm, control rod travel = (5,2- 6,8 mm)
Delivery = (5,0-13,0 $\text{cm}^3/1000$ strokes).
9. **Leak test (vacuum test) on PLA box**
Apply 0.8 bar vacuum to PLA box. Allowable pressure drop 30 mbar in 15 seconds.
10. **Start-of-delivery sensor setting**
Start-of-delivery sensor setting and locking according to average port closing value for all cylinders 19.5 ± 0.2 (0.3°) camshaft angle after cylinder 1.
11. **Check intermediate-control cam (control-lever position)**
Control lever 30° , $n = 1000 \text{ min}^{-1}$, control-rod travel 5,0 - 5,7 mm

En

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 11,8 a 2
3. Edition

En

PE 6 P 100 A 720 RS 15 RQ 250/1100 PA 43 DR
Komb.-Nr. 0 401 846 186

supersedes 4.83
company: Daimler-Benz
engine: OM 355

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,8-2,9}{(2,75-2,95)}$ mm (from BDC) 9,0 - 12,0 mm RW

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	13,4+0,1	11,6 - 11,8	0,3(0,6)			
250	7,9-8,1	1,8 - 2,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	12,4 4,0 1350	1145-1160 1200-1230 0 - 1,0	250	8,0	100 250 410-450	min.9,6 7,9-8,1 = 2,0	-	-

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm Control rod travel
1	2	3	4	5	6	7
1100	116,0-118,0 (114,0-120,0)	450	450	98,0-102,0 (95,5-104,5)	100	140,0-160,0 (136,0-164,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 11,4 p
2. Edition

En

PES 6 P 100 A 820 LS 351
Komb.-Nr. 0 402 046 197

RQ 300/950 PA 483 R

supersedes 10.82
company: Daimler-Benz
engine: OM 407 H
162 kW (220 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,0-3,10}{(2,95-3,15)}$ mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	13,4 _{+0,1}	12,5-12,7	0,3(0,6)			
300	8,0-8,2	1,4-2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,8-14,6	600	14,2	12,4 4,0 1200	995-1010 1020-1050 0 - 1,0	300	8,1	100 300 370-410	min. 10,1 8,0-8,2 10 = 2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 995-1010 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
950	125,0-127,0 (123,0-129,0)	600	-	-	100	135,0-155,0 (131,0-159,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 110 A 820 LS 422 RQ 300/1100 PA 327-1

Komb.-Nr. 0 402 046 218
0 402 046 239

superseded by 5.84
company: Daimler-Benz
OM 407
engine: 147 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,0-3,10 \\ (2,95-3,15) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,6+0,1	10,3-10,5	0,4(0,8)			
300	8,2-8,4	1,4-2,0	0,4(0,7)			
500	-	C, Sp. 4 u. 5	0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,0-14,0	600	13,5	9,6 4,0 1350	1145-1160 1175-1205 0-1,5	300	6,1	100 300 350-390=2,0	min.7,5 6,0-6,2	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	103,0-105,0 (100,0-108,0)	500	500	75,0-79,0 (72,0-82,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,4 g

4. Edition

En

Testoil-ISO 4113

PES 6 P 110 A 820 LS 422
Komb.-Nr. 0 402 046 215

RQ 300/1100 PA 327-2

supersedes 8.81

company: Daimler-Benz

engine: OM 407

176,5 kW (240 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC) Cyl. 6
3,00-3,10

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	1,7+0,1	13,0 - 13,2	0,4(0,75)			
600	1,7+0,2	11,9-12,3	0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	13,0-14,0	600	13,5	10,7	1145-1160	300	7,7	100	min. 10,0	-	-
				4,0	1180-1210			300	7,6-7,8		
								375-415	= 2,0		

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1100	130,0 - 132,0 (127,5 - 134,5)	-	600	119,0 - 123,0 (116,0 - 126,0)	100	130,0 - 150,0 (126,0-154,0)
					300	7,6-7,8 mm RW

Checking values in brackets

H14

11.85

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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H44

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 P 110 A 820 LS 422 RQ 300/950 PA 483-1
Komb.-Nr. 0 402 046 243

supersedes 9,82
company: Daimler-Benz
engine: OM 407
137 kW (186 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,0 - 3,1}
(2,95-3,15) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	11,0+0,1	10,2 - 10,4	0,4 (0,8)			
300	7,8-8,0	1,4 - 2,0	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,0-13,8	600	13,4	10,0 4,0 1150	995-1010 1015-1045 0 - 1,5	300	7,9	100 300 375-415	min.9,5 7,8-8,0 = 2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
950	102,0-104,0 (99,0-107,0)	-	600	93,0-97,0 (90,0- 100,0)	100	135,0-155,0 (131,0-159,0)

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,4 h 2

2. Edition

En

PES 6 P 110 A 820 LS 422

RQ 300/1100 PA 681

Komb.-Nr. 0 402 046 269

supersedes 7.83

company: Daimler-Benz

engine: OM 407

147 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,0-3,10 \\ (2,95-3,15) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,6+0,1	10,3-10,5	0,4(0,8)			
300	8,0-8,2	1,4-2,0	0,4(0,)			
500	-	0, Sp. 4 u. 5	0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		①		Full-load speed regulation Setting point rev/min 3				Control rod travel mm 4		Test specifications Control rod travel mm 5		rev/min 6		④		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		⑤		Torque control rev/min 11		Control rod travel mm 12		③		
600	13,0-14,0	600	13,5	9,6	1145-1160	300	6,1	100	min.7,5	-	-																							
				4,0	1175-1205			300	6,0-6,2																									
				1350	0-1,5			350-390=2,0																										

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		②		Control rod stop rev/min 3		③a		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		③b		Starting fuel delivery idle speed rev/min 6		cm ³ /1000 strokes/mm 7		⑥	
1100	103,0-105,0 (100,0-108,0)	500	500	76,0-80,0 (73,0-83,0)	100	130,0-150,0 (126,0-154,0)															

Checking values in brackets

Testoil-ISO 4113

H16

11.85

BOSCH

 Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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H16

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,4 t

1. Edition

En

PES 6 P 110 A 820 LS 422-1 RSV 300-1100 POA 485-2

Komb.-Nr. 0 402 076 055

supersedes
Daimler-Benz
company OM 407
engine 122,0 kW

Testo-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,20-3,30$ mm (from BDC) RW = 9,0 - 12,0 mm
(3,15-3,35)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	8,6+0,1	8,0-8,2	0,4 (0,8)			
300	7,7-7,9	1,4-2,0	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.28	300	7,8	1100	8,6-8,7
		x = 4,25					300	7,7-7,9	600	9,8-10,0
ca. 54	7,6	1130-1140							750	9,4-9,6
2a	4,0	1170-1200							950	8,8-9,0
	1350	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ..) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	80,0-82,0 (77,5-84,5)	1130-1140*	600	75,0-79,0 (72,0-82,0)	100	130,0-150,0 (126,0-154,0)	0 -	-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

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H17

H 49

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 9,5 a 5

4. Edition

En

PES 5 P 110 A 820 LS 434 RSV 350-1100 P0/485
POA485

supersedes 5.84
company Daimler-Benz
engine: OM 409
137 kW (186 PS)

Komb.-Nr. 0 402 075 002

1 - 3 - 5 - 4 - 2 je $72^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0 - 3,1$ mm (from BDC)
 $(2,95-3,15)$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1080	11,4 \pm 0,1	12,0-12,2	0,4 (0,8)			
350	7,7-7,9	1,1-1,7	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 27	350	7,8	-	-
	x = 2,25						350	7,7-7,9		
							470-530	= 2,0		
ca. 48 2a	10,4 4,0 1300	1120-1130 110-120 0,3-1,						**		

The numbers denote the sequence of the tests ** Set idle-speed auxiliary spring at 2 mm control-rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1080	120,0-122,0 (117,0-125,0)	1120-1130*	-	-	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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11.85

H18

1118

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 9,5 a 2

4. Edition

En

Testoil-ISO 4113

PES 5 P 110 A 820 LS 434 RSV 350-750 P 1/487
 1 - 3 - 5 - 4 - 2 je 72° ±0,5° (±0,75°) P 1A487

supersedes 8,84
 company: Daimler-Benz
 engine: OM 409
 Komb.-Nr. 0 402 075 001

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,0-3,1}{(2,95-3,15)}$ mm (from BDC) Cyl.5; RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6:
730	13,1 ± 0,1	13,5 - 13,7	0,4 (0,8)			
350	7,7 - 7,9	1,1 - 1,7	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	-	-	-	-	-
	x = 2,5									
ca. 34 ⑤	12,1 4,0 850	750-755 790-803 0,3-1,7								

Set idle-speed auxiliary spring at 2 mm control-rod travel,
 The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
	730	135,0-137,0 (132,0-140,0)	750-755*	-	-	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ② and Governors

En

PES5P110A820 LS 434

RQ300/1100 PA 327-4

supersede 6.84

Komb.-Nr. 0 402 045 023

company: Daimler-Benz

0 402 045 026

engine: OM 409

1 - 3 - 5 - 4 - 2 je 72° ±0,50° (±0,75°)

135 kW (184 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,0-3,1 \\ (2,95-3,15) \end{matrix}$ mm (from BDC) Cy1.5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,4±0,1	11,0-11,2	0,4(0,8)			
300	7,6-7,8	1,2 - 1,8	0,4(0,7)			
600	-	C, Sp. 4 u. 5	0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,8-14,6	600	14,2	9,4 4,0 1300	1145-1160 1175-1205 0 - 1,5	300	7,1	100 300 380-420=2,0	min.9,1 7,6-7,8	-	-

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	110,0-112,0 (107,5-114,5)	-	600	90,0-94,0 (87,0- 97,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 9,5 a 6

1. Edition

En

PES 5 P 110 A 820 LS 434-1

RSV 350-1100 POA 485-1

supersedes Daimler-Benz
company OM 409
engine 137,0 kW

Komb.-Nr. 0 402 075 003

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,0-3,10}{(2,95-3,15)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1080	11,4+0,1	12,0-12,2	0,4 (0,8)			
350	7,7-7,9	1,1-1,7	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 21	350	7,8		
	x =						350	7,7-7,9		
ca. 43	10,4	1120-1130					470-530 = 2,0**			
2a	4,0	1180-1210								
	1300	0,3-1,4								

** Set idle-speed auxiliary spring at 2 mm control-rod travel.
The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note. changed to ...)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1080	120,0-122,0 (117,5-124,5)	1120-1130*			100	130,0-150 (126,0-154,0)	0 (0)		

Checking values in brackets

* 1 mm less control rod travel than col 2

Testbench 4110

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 9,5 a 7

1. Edition

En

PES 5 P 110 A 820 LS 434-1

RSV 350-1100 POA 485-3

Komb.-Nr. 0 402 075 004

supersedes
Daimler-Benz
company
OM 409
engine
118,0 kW

ISO 4119

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,0-3,10}{(2,95-3,15)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1080	9,5+0,1	9,9-10,1	0,4 (0,8)			
300	7,2-7,4	1,1-1,7	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 32	300	7,5	1050	9,5-9,6
	x = 5,0						300	7,2-7,4	600	10,5-10,7
ca. 54	8,5	1120-1130							900	9,8-10,0
2a	4,0	1170-1200								
	1300	0,3-								

The numbers denote the sequence of the tests Set idle-speed auxiliary spring at 2 mm control-rod travel.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	Note: changed to . . . rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1080	99,0-101,0 (96,5-103,5)	1120-1130*	650	98,0-102,0 (95,0-105,0)	100	140,0-160,0 (136,0-164,0)			

Checking values in brackets

* 1 mm less control rod travel than col 2

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10.85

H22

H22

Test Specifications Fuel Injection Pumps ② and Governors

PE 10 P 110 A 320 LS 3818 RQ 300/1150 PA 437-2
 Komb.-Nr. 0 401 849 705
 1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4
 0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

supersedes 1.85
 company: Daimler Benz
 engine: OM 423
 261 kW

317 Control Pump

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,0-4,1 \\ (3,95-4,15) \end{matrix}$ mm (from BDC) Cyl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,2+0,1	12,6-12,8	0,4(0,8)			
300	7,9-8,1	1,2-2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,0-14,0	600	13,5	10,2 4,0 1350	1190-1205 1225-1255 0-1,5	300	6,1	100 300 430-470=2,0	min.9,5 7,9-8,1 =2,0	1150 600 900	11,2+0,1 11,7+0,2 11,6+0,2

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation: At 1190-1205 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1150	126,0-128,0 (123,5-130,5)	-	600 900	109,0-113,0 (106,0-116,0) 118,0-123,0 (115,0-126,0)	100	140,0-160,0 (136,0-164,0)

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,4 L 1

1. Edition

En

Testoil-ISO 4113

PES 6 P 110 A 820 LS 442 RQ 300/1100 PA 327-2

Komb.-Nr. 0 402 046 228

supersedes 7.83
company: Daimler-Benz
engine: OM 407 h
177 kW (241 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,2 - 3,3 \\ (3,15-3,35) \end{matrix}$ mm (from BDC) Cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,3+0,1	12,8 - 13,0	0,4(0,8)			
300	7,7-7,9	1,3 - 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point	Test specifications			Setting point	Test specifications			rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	13,0-14,0	600	13,5	10,3 4,0 1350	1145-1155 1180-1210 0 - 1,5	300	7,8	100 300	min. 9,4 7,7-7,9	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145 - 1155 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1100	128,0 - 130,0 (125,5 - 132,5)	-	600	110,0 - 114,0 (107,0 - 117,0)	100	130,0 - 150,0 (126,0-154,0)

Checking values in brackets

11.85

H24

H24

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Test Specifications Fuel Injection Pumps ② and Governors

Testoil-ISO 4113

PES 6 P 110 A 820 LS 442 RQ 300/1100 PA 327-5
Komb.-Nr. 0 402 046 234
0 402 046 240

supersedes 7.84
company: Daimler-Benz
OM 407
engine: 162 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2-3,3} (3,15-3,35) mm (from BDC) Cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	10,9+0,1	11,3-11,5	0,4(0,8)			
300	8,2-8,4	1,4-2,0	0,4(0,7)			
600	-	0, Sp. 4 u. 5	0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	13,0-14,0	600	13,5	9,9 4,0 1300	1145-1160 1180-1210 0-1,5	300	8,1	100 300 365-405	min. 9,0 7,3-7,5 = 2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1100	113,0 - 115,0 (110,0 - 118,0)	500	600	90,0 - 94,0 (87,0 - 97,0)	100	130,0 - 140,0 (126,0 - 144,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 11,4 1 9

En 2. Edition

PES 6 P 110 A 820 LS 442 RQ 250/1100 PA 327-8
Komb.-Nr. 0 402 046 298

supersedes 7.84
company: Daimler-Benz
engine: OM 407
162 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,20-3,30 \\ (3,15-3,35) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,9+0,1	11,3-11,5	0,4 (0,8)			
250	8,0-8,2	1,2 - 1,8	0,4 (0,7)			
600	-	C, Sp.4 u. 5	0,6 (0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	13,0 - 14,0	550	13,5	9,9 4,0 1300	1145-1160 1180-1210 0 - 1,0	250	7,6	100 250 330-370	min. 9,0 7,5-7,7 = 2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	113,0 - 115,0 (110,5 - 117,5)	-	600	90,0 - 94,0 (87,0 - 97,0)	100	130,0 - 150,0 (126,0 - 154,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

En

Testoil-ISO 4113

PES 6 P 110 A 820 LS 442 RQ 300/950 PA 483

Komb.-Nr. 0 402 046 236

supersedes 1.83

company: Daimler-Benz

engine: OM 407

162 kW (220 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2 - 3,3}
(3,15-3,35) mm (from BDC) Cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	12,1+0,1	12,2 - 12,4	0,4(0,8)			
300	8,0-8,2	1,4 - 2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,0-14,0	600	13,5	11,1 4,0 1150	995-1010 1010-1045 0 - 1,0	300	8,1	100 300 410-450	min.9,7 8,0-8,2 =2,0mm	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 995 - 1010 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
950	122,0 - 124,0 (119,0 - 127,0)	-	600	118,0 - 122,0 (115,0 - 125,0)	100	140,0 - 160,0 (136,0-164,0)

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,41.10

2. Edition

En

PE 6 P 110 A 820 LS 442 RQ 250/950 PA 483-2

supersedes 7.84

Komb.-Nr. 0 402 046 299

company: Daimler-Benz

engine: OM 407

147 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\overset{3,20-3,30}{(3,15-3,35)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	11,4+0,1	11,0-11,2	0,4(0,8)			
250	8,4-8,6	1,4-2,0	0,4(0,7)			
600	-	C, Sp. 4 u. 5	0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 6		Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 10		Control rod travel mm 12	
600	13,0-14,0	600	13,5	10,4	995-1010	250	8,1	100	min. 9,7	-	-	-	-	-	-	-	-
				4,0	1015-1045			250	8,0-8,2								
				1150	0-1,0			330-370	=2,0								

 Torque-control travel on flyweight assembly dimension a = mm
 Speed regulation: At
995-1010 min⁻¹
1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
950	110,0-112,0 (107,0-115,0)	-	-	600	97,0-101,0 (94,0-104,0)	100	140,0-160,0 (136,0-164,0)

Checking values in brackets

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J4

J4

.11.85

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,4 1 14

1. Edition

En

PES 6 P 110 A 820 LS 442 RSV 350-1100 POA 485
Komb.-Nr. 0 402 076 054

supersedes: -
company: Daimler-Benz
engine: OM 407
177,0 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,7+0,1	12,5-12,7	0,4 (0,8)			
350	8,1-8,3	1,4-2,0	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2		Intermediate rated speed 4 5 6			4 Control-lever deflection in degrees 7	Lower rated speed rev/min 8		Control rod travel mm 9		3 Torque control rev/min 10	Control rod travel mm 11
	mm	mm rev/min					rev/min	mm	rev/min	mm		
loose	800	0,3-0,7	-	-	-	ca.28	300	8,2	-	-	-	-
ca. 50 2a	X =						100	min.9,8				
	10,7	1140-1150					300	8,1-8,3				
	4,0	1220-1250					470-510	= 2,0**				
	1350	0,3-1,4										

** Set idle-speed auxiliary spring at 2 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	125,0-127,0 (122,0-130,0)	1140-1150*	600	107,0-109,0 (104,0-112,0)	100	130,0-150,0 (126,0-154,0)		

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

BOSCH

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J5

J5

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 11,4 1 4

5. Edition

En

Testoil-ISO 4113

PES 6 P 110 A 820 LS 442 RSV 350-750 P 1/487
Komb.-Nr. 0 402 076 052

supersedes 9.84
company: Daimler-Benz
engine: OM 407
121 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,2-3,3}{(3,15-3,35)}$ mm (from BDC) Cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,1 +0,1	11,9 - 12,1	0,4(0,8)			
350	8,1-8,3	1,3 - 2,1	0,4(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	-	-	-	-	-
⑤ ca.35	11,1	750-755								
	4,0	788-801								
	850	0,3-1,7								

Set idle-speed auxiliary spring at 2 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
730	119,0 - 121,0 (116,0 - 124,0)	750-755*	-	-	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 110 A 820 LS 442 RQ 300/1100 PA 691
Komb.-Nr. 0 402 046 291

supersedes-
company: Daimler Benz
engine: 407 H
147,0 kW

Testo ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2-3,3}
(3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,6+0,1	10,3-10,5	0,4(0,8)			
300	8,2-8,4	1,3-1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Control rod travel mm 8	Control rod travel mm 10	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	
600	13,0-14,0	600	13,5	9,6 4,0 1350	1130-1140 1165-1195 0-1,0	300	7,8	100 300 365-405=2,0	min.9,4 7,7-7,9	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1130-1140 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3	Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2	Control rod travel mm 3a	Control rod travel mm 3b	cm ³ /-1000 strokes 5	cm ³ /1000 strokes/mm 7	Control rod travel mm 6	Control rod travel mm 6
1100	103,0-105,0 (100,0-108,0)	-	600	78,0-82,0 (75,0-85,0)	100	11,1-11,2 mm RW **

Checking values in brackets

** Set TAS at room temperature with 11,1 - 11,2 mm control-rod travel.

J7

J7

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 110 A 820 LS 442 RQ 300/1100 PA 691-1
Komb.-Nr. 0 402 046 306

superseded 7.84
company Daimler-Benz
engine: OM 407 H
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2-3,3} (3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,3+0,1	12,5-12,7	0,4(0,8)			
300	7,7-7,9	1,3-1,9	0,4(0,7)			
600	-	Ca. Sp. 4 u. 5	0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider FRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,0-14,0	600	13,5	10,3 4,0 1350	1130-1140 1175-1215 0-1,5	300	7,8	100 300 365-405	min.9,4 7,7-7,9 =2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: AI 1130-1140 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	125,0-127,0 (122,5-129,5)	-	600	103,0-107,0 (100,0-110,0)	100	130,0-150,0 (126,0-154,0) ** See page 2

Checking values in brackets

** The controller is equipped with a starting device that depends upon the temperature (TAS).

Instructions for adjusting the starting flow:

Adjust the starting flow without the TAS with the control-rod plug cap. Then put on the TAS and adjust a control.rod travel of 11.8 - 11.9 mm at room temperature.

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,4 L 16
1. Edition

En

PES 6 P 110 A 820 LS 442-1 RSV 350-1100 POA 485
Komb.-Nr. 0 402 076 053

supersedes
company Daimler-Benz
engine OM 407
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,7+0,1	12,5-12,7	0,4 (0,8)			
350	7,8-8,0	1,4-2,0	0,4 (0,7)			
600	-	C, Sp. 4 u. 5	0,6(0,9)*			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	1250	0,3-0,7	-	-	-	ca. 30	350	7,9	-	-
	x = 4,0						350	7,8-8,0		
							435-495	=2,0		
ca. 51	10,7	1140-1150								
2a	4,0	1220-1250								
	1350	0,3- 1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ..) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	125,0-127,0 (122,0-130,0)	1140-1150*	600	107,0-111,0 (104,0-114,0)	100	140,0-160,0 (136,0-164,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

1.86

J10

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 120 A 720/3 LS 470-2 RQ 250/1100 PA 658-9
Komb.-Nr. 0 402 036 049

supersedes

company: MAN

engine: D 2866 MUH

265,0 kW

MAN-Nr.2-7719

Testo: ISO 4113

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,5+0,1	23,8-24,0	0,5(0,9)			
250	5,2-5,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider FRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	Control rod travel mm 12				
600	19,2-20,8	600	20,0	10,3	1145-1160	250	5,3	100	min. 6,8	750	12,8-12,9
VH = max. 46 °				4,0	1180-1210			250	5,2-5,4	100	11,3-11,4
				1300	0 - 1,0			315-355	= 2,0	935	12,4-12,6
										990	11,8-12,1

Torque-control travel on flyweight assembly dimension a = 0,65 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 3a	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 750	1,0 bar 238,0-240,0 (235,0-243,0)			LDA 650	1,0 bar 239,0-245,0 (236,0-248,0)	100	225,0-245,0 (221,0-249,0)
LDA 1100	1,0 bar 213,0-219,0 (210,0-222,0)			LDA 500	0,4 bar 188,0-200,0 (185,0-203,0)	250	12,0-18,0 (9,0-21,0)
				LDA 500	0 bar 139,0-141,0 (136,0-144,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,9 a 5 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 470-2 + RQ PA 658-9	1,0	0 0,10 0,40	12,5-12,6 9,3-9,4 9,6-9,7 11,0-11,4

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,6 a

3. Edition

En

PE 6 P 100 A 720 RS 473 RQ 300/1100 PA 269-1
Komb.-Nr. 0 401 846 494

supersedes 7.84
company: Daimler-Benz
engine: OM 355
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,5-3,6}{(3,45-3,65)}$ mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,7+0,1	12,5-12,7	0,35(0,6)			
300	8,1-8,3	1,7-2,3	0,35(0,55)			
600	---	C, Sp. 4u.5	0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
600	13,4-13,9	600	13,6	11,7	1145-1160	300	8,1	100	min. 9,7	-	-										
				4,0	1190-1220			300	8,0-8,2												
				1350	0-1,5			375-415	2,0												

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm 7	
1100	125,0-127,0 (123,0-129,0)	-	-	600	117,0-121,0 (114,5-123,5)	100	150,0-170,0 (146,0-174,0)						

Checking values in brackets

J13

11.85

BOSCH

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Test Specifications Fuel Injection Pumps ① and Governors

PE 6 P 100 A 720 RS 473 RQV 300-1100 PA 740
Komb.-Nr. 0 401 846 507

supersedes -
company: Daimler-Benz
engine: OM 355
177,0 kW

Test-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,5-3,6}
(3,45-3,65) mm (from BDC) Cyl.1; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,1+0,1	12,5-12,7	0,35(0,6)			
300	7,9-8,1	1,2-1,8	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1160	15,2-17,8	-	-	-	ca. 22	100	min.9,6	-	-
ca. 65	12,1 4,0 1350	1140-1150 1195-1225 0-1,5				300-500	300	7,9-8,1		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	125,0-127,0 (123,0-129,0)	1140-1150*	600	117,0-121,0 (114,5-123,5)	100	150,0-170,0 (146,0-174,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

PE 6 P 100 A 720 RS 473 RQV 300-1100 PA 741
Komb.-Nr. 0 401 846 508

supersedes -
company: Daimler-Benz
OM 355
engine: 177,0 kW

100 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,5-3,6}{(3,45-3,65)}$ mm (from BDC) Cyl.1; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	13,1+0,1	12,5-12,7	0,35(0,6)			
300	8,0-8,2	1,2-1,8	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1160	15,2-17,8	-	-	-	ca. 21	100	min. 9,7	-	-
ca. 64	12,1 4,0 1350	1140-1150 1195-1225 0-1,5				300-500	300	8,0-8,2		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	125,0-127,0 (123,0-129,0)	1140-1150*	600	117,0-121,0 (114,5-123,5)	100	150,0-170,0 (146,0-174,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

PE 6 P 100 A 720 RS 473
Komb.-Nr. 0 401 846 509

RQV 300-1100 PA 742

supersedes

company: Daimler-Benz

engine: OM 355

177,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testo-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,5-3,6}{(3,45-3,65)}$ mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,1+0,1	12,5-12,7	0,35(0,6)			
300	8,0- 8,2	1,2-1,8	0,35(0,55)			
600	-	C, Sp. 4 u. 5	0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1220	15,2-17,8	-	-	-	ca. 20	100	min.8,7	250	0,9-1,1
ca. 64	12,1 4,0 1350	1140-1150 1195-1225 0-1,5				300-500	300	8,0-8,2	530 820 1100	3,0-3,5 5,5-5,8 7,7

Torque control travel a - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	125,0-127,0 (123,0-129,0)	1140-1150*	600	117,0-121,0 (114,5-123,5)	100	150,0-170,0 (146,0-174,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

PE 6 P 110 A 720 RS 476
Komb.-Nr. 9 400 087 320

RQV 300-1000 PA 751

supersedes -

company: Daimler Benz
engine: OM 355 LA
235,3 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,35-3,45$ mm (from BDC) Cyl.1; RW = 9,0-12,0 mm
(3,30-3,50)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	13,2+0,1	19,1-19,3	0,4(0,75)			
300	5,9-6,1	0,7-1,2	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1050	15,2-17,8	-	-	-	ca. 14	100	min.8,0	260	0,8-1,2
ca. 66	12,3 4,0 1250	1040-1050 1130-1160 0-1,0				370-440	300 520-580=2,0	5,9-6,1	450	2,7-3,0
									800	5,6-5,9
									1050	8,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 191,0-193,0 (188,0-196,0)	1040-1050*	LDA 600	0,7 bar 186,0-190,0 (183,0-193,0)	100	160,0-170,0	-	-
			LDA 500	0 bar 112,5-115,5 (110,0-118,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

MB 11,6 d

Test at n = **500** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 476 + RQV..PA 751	0,7	0 0,47 0,30	13,2-13,3 10,0-10,1 12,7-12,8 11,4-11,7

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 10,0e1
1. Edition

En

PE 5 P 110 A 720 RS 479 RQ 300/1050 PA 419-1
Komb.-Nr. 9 400 087 355
1-2-4-5-3 je 72° ± 0,5° (± 0,75°)

supersedes -
company: Daimler-Benz
engine: OM 355-5A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,35-3,45 \\ (3,30-3,50) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1050	11,1+0,1	13,6-13,7	0,4(0,75)			
300	6,4-6,6	1,1-1,6	0,35(0,75)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,8	600	16,0	10,1 4,0 1300	1095-1110 1150-1180 0-1,0	300	6,5	100 300 440-480=2,0	min. 8,0 6,4-6,6 2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: AI 1095-1110 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1050	136,0-137,0 (132,5-140,5)	500	500	129,0-133,0 (126,0-136,0)	100	150,0-170,0

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 9,6 a
10. Edition

En

Testoll-ISO 4113

PE 6 P 100 A 320 LS 805

RQ 300/1250 PA 187 P (1)

supersedes 8.84
company: Daimler Benz
engine: OM 401

ROV 300-1250 PA 227 R (2)

6 - 3 - 5 - 2 - 4 - 1
0 -45 -120-165-240-285 $\pm 0,5^{\circ}(\pm 0,75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,40-3,50} (3,35-3,55) mm (from BDC) Cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	11,1 +0,1	10,7 - 10,9	0,3(0,6)			
300	7,9-8,1	1, - 2,	0,3(0,7)			
600	-	C, Sp. 4 u. 5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

RQ..187 R (1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
650	13,8-14,6	650	14,2	10,1	1295-1310	300	8,0	100	min. 9,5	1250	11,1-11,2
				4,0	1330-1360			300	7,9-8,1	600	11,1-11,3
				1450	0 - 1,5			420-450	=2,0		

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
(1) 1250	107,0 - 109,0 (105,0 - 111,0)	600	600	85,0 - 90,0 (83,0 - 92,0)	100	110,0-130,0 (106,0-134,0)

Checking values in brackets

B. Governor Settings

RQV.. 227 R (2)

MB 9,6 a

- 2 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1290	15,2-17,8	-	-	-	ca. 12	100	min. 9,5	250	0,2-0,6
ca. 66	10,0 4,0 1450	1290-1300 1330-1360 0 - 1,0						7,9-8,1	580 920 1250	3,0-3,3 5,1-5,5 7,8
						325-450				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) 1250	106,0-108,0 (104,0-110,0)	1290-1300*	600	83,0 - 88,0 (80,0 - 92,0)	100	110 - 130		
						100-250 (80-270)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm

En

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

En

Testoil-ISO 4113

PE 6 P 100 A 320 LS805 RQ 300/1150 PA436R (1)
EP/RSV 575-1250 P1/817R (2)

supersedes 7.83
company Daimler-Benz
engine: OM 401
(1 = 136 kW)
(2 = 129 kW - 175PS)

Komb.-Nr. 0 401 846 406 (1)
0 401 876 203 (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,40-3,50 \\ (3,35-3,55) \end{matrix}$ mm (from BDC) Cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery (1) cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery (2) cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1130	10,5+0,1	10,1 - 10,3	0,3(0,6)	10,1 +0,1	9,3 - 9,5	n = 1230
350	7,8-8,0	2,5 - 3,0	0,3(0,5)	6,0-6,2	1,2 - 1,8	n = 575

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

436R (1)

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	13,8-14,6	650	14,2	9,5	1180-1195	300	7,9	100	min.9,4	1150	10,5-10,6
				4,1	1250-1280			300	7,8-8,0	650	10,5-10,7
				1400	0 - 1,0			360-400=2,0			

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At **1180-1195 min** 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
(1) 1130	101,0 - 103,0 (99,0 - 105,0)	650	-	-	100	110,0 - 130,0 (106,0-134,0)

Checking values in brackets

B. Governor Settings

817R (2)

1A

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca.30	575	4,7	**	
	x = 4,0						200	min.19		
ca.63	9,1	1265-1275					575	4,6-4,8		
	4,1	1290-1305					570-630	= 2,0		
⑤	1400	0,3-1,7					650	0 - 1		

** Set idle-speed auxiliary spring at 2 mm control-rod travel, then turn back 1/4 turn. The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) 1230	93,0-95,0 (91,0-97,0)	1265-1275*			100	110,0-130,0		
			⑥a		1300	4,1 mm RW dispersion max.4 (6)		

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than col 2

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
⑤										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

En

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 9,6 k 3

1. Edition

En

PE 6 P 100 A 320 LS 805 RSV 650-1200 P 1 A 820
Komb.-Nr. 0 401 876 239

supersedes
company Daimler-Benz
OM 401
engine 129 kW

1 - 6 - 3 - 5 - 2 - 4
0 -75 -120-195-240-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,35-3,55) mm (from BDC) Cyl. 6

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1180	10,3+0,1	9,7-9,9	0,3(0,6)			
650	5,6-5,8	0,8-1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	mm	rev/min	mm
loose	800	0,3-1,0	-	-	-	ca. 31	650	5,7	-	-
	x = 4,25						650-720=2,0			
ca. 61 2a	9,3	1215-1225								
	4,0	1245-1260 **								
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to .) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2		4	5	6	7	8	9
1180	97,0-99,0 (95,0-101,0)	1215-1225*	-	-	100	110,0-130,0 (106,0-134,0)	-	-

** Speed difference between control-rod travel reduced 1 mm by governor and control-rod travel position 4 mm = 25-35 min/l.

Checking values in brackets

* 1 mm less control rod travel than col 2
1.86

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 9,6 K 2

1. Edition

En

PE 6 P 100 A 320 LS 805 RSV 650-1200 P 1/820
Komb.-Nr. 0 401 876 239

supersedes
Daimler-Benz
company OM 401
engine 129 kW

1 - 6 - 3 - 5 - 2 - 4
0 -75 -120-195-240-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,4-3,5$ mm (from BDC) Cyl. 6
 $(3,35-3,55)$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1180	10,3±0,1	9,7-9,9	0,3(0,6)			
650	5,8-6,0	0,7-1,3	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testo-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 31	650	5,7	-	-
	x = 4,25						650-720=2,0			
ca. 61	9,3	1215-1225								
2a	4,0	1245-1260 **								
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1180	97,0-99,0 (95,0-101,0)	1215-1225*	-	-	100	110,0-130,0	-	-

** Speed difference between control-rod travel reduced 1 mm by governor and control-rod travel position 4 mm = 25-35 min/1.

Checking values in brackets

* 1 mm less control rod travel than col 2

K1

BOSCH

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1.86

K1

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4MB 12,8 e

7. Edition

En

PE 8 P 100 A 320 LS 810 RQ 300/1150 PA 187 R (1)
RQV300-1150 PA 227 R (2)
RQV350-1250 PA 251 R (3)

supersedes 7.83
company: Daimler-Benz
engine: OM 402
(3) 188 kW (256 PS)

1-8-7-2-6-3-5-4 je 45° ± 0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,4 - 3,5}
(3,35-3,55) mm (from BDC) cyl.8; RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes (1 u. 2) 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes (3) 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,3+0,1	10,0-10,2	0,3(0,6)	11,0+0,1	10,1-10,3	n = 1230
300	7,5-7,7	1,4-2,2	0,3(0,5)	7,8-8,0	1,5-2,1	n = 350

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

RQ..PA 187 R (1)

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3			Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8			Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
650	13,8-14,6	650	14,2	9,3	1195-1210	300	7,5	100	min. 9,2	-	-	-	-
VH = max. 46°				4,0	1235-1265			300	7,5-7,7				
				1400	0 - 1,0			405-445	= 2,0				

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1195-1210 min ¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
1150	100,0-102,0 (98,0-104,0)	500	600	77,5-82,5 (75,5-84,5)	100	110,0-130,0 (106,0-134,0)	Control rod travel

Checking values in brackets

K2

11.85

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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K2

B. Governor Settings

RQV..227 R (2)

MB 12,8 e

-2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 12	100	min.9,0	300	0,4-1,5
ca.62	9,3 4,0 1350	1190-1200 1260-1290 0 - 1,0				360-390		7,4-7,6	500 1000 1250	2,6-3,2 5,7-6,1 8,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	102,0-104,0 (100,0-106,0)	1190-1200*	600	82,0-87,0 (80,0-89,0)	100	110,0-130,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

RQV..PA 251 R (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1250	15,2-17,8	-	-	-	ca.20	100	min.8,5	1285	8,3
ca.66	9,9 4,7 1500	1280-1290 1350-1380 0 - 1,0					350	6,9-7,1		
							710-770 = 2,0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1230	101,0-103,0 (99,0-105,0)	1280-1290*	1230	78,0-80,0 (76,0-82,0) **	100	110-130,0	-	-
	**Reduced-delivery stop				350	16,0-22,0 Change-over point 100-270 (80-290)		

Checking values in brackets

* 1 mm less control rod travel than col 2

K3

K3

En

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 16,0c

8. Edition

En

Testoil-ISO 4113

PE 10 P 100 A 320 LS 811 RQ 300/250 PA 187 R

supersedes 2.83
company: Daimler-Benz
engine: OM 403

1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4
0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315^{0±0,5°} (±0,75°)

Komb.- Nr.
0 401 849 133

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $(3,35-3,55)$ mm (from BDC) Cyl. 10
3,40-3,50

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	10,3±0,1	10,0 - 10,2	0,3(0,6)			
300	7,4-7,6	1,8 - 2,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
650	13,8-14,6	650	14,2	9,3 4,0 1450	1295-1310 1335-1365 0 - 1,0	300	7,5	100 300 405	min. 9,0 7,4-7,6 445=2,0	-	-

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm Control rod travel
1	2	3	4	5	6	7
1250	100,0 - 102,0 (98,0 - 104,0)	600	600	75,0 - 80,0 (72,0 - 83,0)	100	110,0-130,0 (106,0-134,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

PE 10 P 100 A 320 LS 811 RQV 300-1250 PA 227 R
 1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4
 0-27-72-99-144-171-216-243-288-315 ° ± 0,5 ° (± 0,75 °)

supersedes 7.83
 company: Daimler-Benz
 OM 403
 engine: Komb.-Nr.
 0 401 849 136

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,4 - 3,5 \\ (3,35-3,55) \end{matrix}$ mm (from BDC) Cyl. 10

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	10,3+0,1	10,0-10,2	0,3(0,6)			
300	7,4-7,6	1,8-2,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1250	15,2-17,8	-	-	-	ca. 12	100 300	min. 9,0 7,4-7,6	250 580 920 1250	0,7-1,0 3,4-3,7 5,2-5,6 8,0
ca. 66	9,3 4,0 1450	1290-1300 1330-1360 0 - 1,0				350-550				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	100,0-102,0 (98,0-104,0)	1290-1300 *	600	75,0-80,0 (72,0-83,0)	100	120,0-140,0 (116,0-144,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ② and Governors

Testoil-ISO 4113

PE 10 P 100 A 320 LS 811 RQ 300/1250 PA 329/2 R (1)
LS 811Z RQ 300/1250 PA 187 R (2)

supersedes 10.83
company: Daimler Benz
engine: OM 403
236 kW (320 PS)
Z = 206 kW (280 PS)

10 - 9 - 4 - 1 - 8 - 7 - 6 - 3 - 5 - 2
0 -45 -72 -117-144-189-216-261-288-333⁰ ±0,5⁰(±0,75⁰)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,40-3,50 \\ (3,35-3,55) \end{matrix}$ mm (from BDC) Cyl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery 1 cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery 2 cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	11,7 - 12,7	0,3	9,1-9,2	8,2 - 8,4	n = 1250
600	9	5,0 - 6,2	0,3	7,4-7,6	1,9 - 2,5	300
600	15	15,3 - 17,0				
200	9	3,5 - 4,5				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

329/2 R

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1270	15,6-16,0	540	0	200	6,9-8,1	-	-
				1300	7,5-13,0			300	4,2-6,5		
				1330	0 - 9,2			400	0 - 2,4		
				1380	0			440	0		

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: A $\begin{matrix} 1290 - 1310 \\ = \end{matrix}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1250	98,0 - 100,0	600	600	76,0 - 81,0	100	110,0 - 130,0
					300	10,0 - 14,0

(increase by ± 2,0 cm³)

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	8,1	1295-1310	300	7,5	100	9,0	-	-
				4,5	1330-1360			300	7,4-7,6		
				1400	0 - 1,0			420-460=2,0			

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation At 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
1250	82,0 - 84,0 (80,0-86,0)	500	600	58,5 - 63,5 (56,0-66,0)	100	110,0 - 130,0 (106,0-134,0)

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7

En Checking values in brackets

K7

K7

Test Specifications Fuel Injection Pumps ② and Governors

En

Testoil-ISO 4113

PE 10P 100A 320LS 842 RQ 300/1150 PA 187-2R

Komb.-Nr. 0 401 849 160

10 - 9 - 4 - 1 - 8 - 7 - 6 - 3 - 5 - 2

0 -45 -72 -117-144-189-216-261-288-333 $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 11.81

company: Daimler-Benz

OM 403

engine: 259 (352 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2 - 3,3} (3,15- 3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,0+0,1	11,5 - 11,7	0,3(0,6)			
300	7,4-7,6	1,2 - 1,8	0,3(0,5)			
600	-	C, Sp. 4u.5	0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	Control rod travel mm 12				
13,8-14,6	14,2	11,0	1195-1210	7,5	100	min.9,0	1150	12,0-12,1			
		4,0	1235-1265		300	7,4-7,6	600	12,0-12,2			
		1400	0 - 1,0			410-450-2,0					

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2	Control rod travel mm 3a	Control rod travel mm 3b	cm ³ /-1000 strokes 5	Control rod travel mm 6	Control rod travel mm 7	Control rod travel mm 7	Control rod travel mm 7
1150	115,5 - 117,5 (113,5 - 119,5)	650	600	100,5 - 105,5 (98,5 - 107,5)	100	125,0-145,0 121,0-149,0	

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

En

Testoil-ISO 4113

PE 8 P 100 A 320 LS845 RQ 300/1250 PA 187R (1)

supersedes 5.79
company: Daimler Benz
engine: OM 402
(1 - 188kW-256PS)
(2 - 235kW-320PS)

PE 8 P 110 A 320 LS844 RQ 300/1250 PA 473R (2)

8 - 7 - 2 - 6 - 3 - 5 - 4 - 1
0 - 45- 90-135-180-225-270-315° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,40-3,50} (3,35-3,55) mm (from BDC) cyl.8

Rotational speed rev/min	Control rod travel mm	Fuel delivery (1) cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery (2) cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	11,1+0,1	10,2 - 10,4	0,3(0,6)	11,5	12,9 - 13,1	
300	7,4-7,6	1,3 - 1,9	0,3(0,5)	+0,1 6,5-6,7	1,3 - 1,9	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ..187R (1)

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ①				Torque control ③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	13,8-14,6	600	14,2	10,1	1295-1310	300	7,5	100	min.9,3	1250	11,1-11,3
				4,0	1345-1375			300	7,7-7,9	600	11,1-11,3
				1500	0 - 1,0			415-455	=2,0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1250	102,0 - 104,0 (100,0 - 106,0)	600	-	-	100	120,0-140,0 (116,0-144,0)

Checking values in brackets

B Governor Settings

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
Control rod travel		Setting point	Test specifications			Setting point	Test specifications			Control rod travel	
rev/min	mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
700	19,2-20,8	700	20,0	10,5	1295-1310	300	6,6	100	min.8,1		
1250	Breakway	ca.49°		4,0	1355-1385			300	6,5-6,7		
								420-450	=2,0		

Torque-control travel on flyweight assembly dimension a - mm Speed regulation At 1 mm less control rod travel

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
LDA 1250	0,7 bar 129,0 - 131,0 (126,0 - 134,0)		LDA 450	0 bar 83,0 - 86,0 (80,0 - 89,0)	100	120 - 140 (Electro-magnet (24 V))

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm
844 mit 473R	0,70		11,5 - 11,6
		0,33	11,0 - 11,1
		0,24	10,3 - 10,5
		0	9,7 - 9,9

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 P 120 A 820 LS 3077-10 RQ 300/1100 PA 761
Komb.-Nr. 0 402 046 762
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -
company: Daimler-Benz
engine: OM 407 A
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,0-4,1 \\ (3,95-4,15) \end{matrix}$ mm (from BDC) Cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,5+0,1	15,2 - 15,4	0,5 (0,9)			
300	5,0-5,2	1,4 - 2,0	0,8 (1,2)			
600	-	C, Sp. 4 u.5	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	13,0-14,0	650	13,5	9,5	1145-1160	300	4,9	100	min. 6,7	-	-
				4,0 1350	1200-1230 0-1,5			300	5,0-5,2		
								360-400	= 2,0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At $1145-1160 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	152,0-154,0 (149,0-157,0)	-	600	152,0 - 158,0 (149,0 - 161,0)	100	150,0 - 170,0 (146,0 - 174,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 110 A 920 LS 3131 RQ 300/1100 PA 780
Komb.-Nr. 0 402 046 765

supersedes -
company: Daimler-Benz
engine: OM 427 H
177,0 kW

Testo 504113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,3-4,4} (4,25-4,45) mm (from BDC) Cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,1+0,1	14,0 - 14,2	0,4 (0,8)			
300	7,1-7,3	1,4 - 2,0	0,45(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	14,7-16,4	550	15,6	10,2	1145-1160	300	7,2	100	min. 8,8	-	-
VH = max. 46°				4,0	1180-1210			300	7,1- 7,3		
				1300	0 - 1,5			360 - 400	= 2,0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	140,0 - 142,0 (137,0 - 145,0)	-	600	117,0 - 121,0 (114,0 - 124,0)	100	130,0 - 150,0 (126,0 - 154,0)

Checking values in brackets

Set TAS at room temperature with 11.6 - 11.7 mm control-rod travel.

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,7 a 9

1. Edition

En

PES 6 P 110 A 820 LS 3131 RQ 300/1100 PA 800
Komb.-Nr. 0 402 046 773

supersedes -
company: Daimler-Benz
engine: OM 427 H
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,3-4,4$
($4,25-4,45$) mm (from BDC) Cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,0+0,1	13,7-13,9	0,4 (0,8)			
300	7,2-7,4	1,4-2,0	0,4 (0,8)			
600	-	C, Sp. 4 u. 5	(0,9)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	14,7-16,4	550	15,6	10,0 4,0 1300	1145-1160 1195-1225 0 - 1,5	300	7,3	100 300 380-420 = 2,0	min. 8,8 7,2-7,4	-	-

Torque-control travel on flyweight assembly dimension a = - mm 1145-1160 min⁻¹ 1 mm less control rod travel

Speed regulation: At

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	137,0-139,0 (134,0-142,0)	-	600	113,0-117,0 (110,0-120,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

12.85

K13

K13

BOSCH

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,7 e

1. Edition

En

PES 6 P 110 A 820 LS 3131-1 RSV 350-750 POA 517
Komb.-Nr. 0 402 076 719

supersedes
company Daimler-Benz
OM 427
engine 142 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,3-4,4 \\ (4,25-4,45) \end{matrix}$ mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,2+0,1	13,6-13,8	0,4 (0,8)			
350	6,9-7,1	1,4-2,0	0,45(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 17	350	7,0	-	-
ca. 30 2a	X =						100	min.19,5		
	11,2	750-755					350	6,9-7,1		
	4,0	786-799					360-400	= 2,0		
	900	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to .) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	136,0-138,0 (133,0-141,0)	750-755*	-	-	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FOR 6,6 b

2. Edition

En

PES 6 P 110 A 720 RS 3145

RQV 350-1300 PA 748

supersedes 7.85

Komb.-Nr. 9 400 087 305

company: Ford

Values only apply to test nozzle-and-holder assembly

engine: 6,6 l TC

1 688 901 017 and fuel-injection test tubing 1 680 750 008

123 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,25-4,35} (4,20-4,40) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1300	11,6+0,1	9,4-9,7	0,4(0,75)			
350	6,9-7,1	1,0-1,5	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1300	15,2-17,8	-	-	-	ca. 16	100	min.10,0	350	0,6-1,3
ca. 64	10,6	1360-1370					350	6,9-7,1	500	2,3-2,7
	4,0	1470-1500					580-640=2,0		800	4,0-4,3
	1600	0-1,0				370-440			1000	5,0-5,3
									1300	7,3

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1300	93,5-96,5 (91,0-99,0)	1360-1370*	600	87,5-91,5 (84,5-94,5)	100	105,0-125,0 (101,0-129,0) = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

PES 6 P 110 A 720 RS 3150 RQV 350-1300 PA 776-1

Komb.-Nr. 9 400 087 337

supersedes

company: Ford
engine: 7,8 l - TC
185 PS

Values only apply to test nozzle-and-holder assembly
1 688 901 017 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,25-4,35}
(4,20-4,40) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	12,0+0,1	12,3-12,5	0,5 (0,9)			
350	7,4-7,6	2,1-2,5	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
1300	max.	15,2-17,8	-	-	-	ca. 15	100	min.9,5	350	0,6-1,3
ca. 62	11,0 4,0 1600	1360-1370 1470-1500 0-1,0				370-440 ③a	350 630-690= 2,0	7,4-7,6	500 800 1000 1300	2,3-3,7 4,0-4,3 5,0-5,3 7,3

Torque control travel a = 0,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1300	0,6 bar 123,0-125,0 (121,0-127,0)	1360-1370*	LDA 900	0,6 bar 107,5-111,5 (105,5-113,5)	100	150,0-170,0 (146,0-174,0) =20,0-21,0 mm RW	1300 600 900 1015	12,0+0,1 12,3+0,1 12,3+0,1 12,2+0,1
LDA 600	0,6 bar 89,5-93,5 (87,5-95,5)		LDA 500	0 bar 69,5-71,5 (66,5-74,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

FOR 7,8 a 1

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 P..RS 3150 +RQV..PA 776-1	0,60	0 0,25 0,34	12,3-12,4 11,3-11,4 11,6-11,7 12,0-12,2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 FOR 7,8 a

1. Edition

PES 6 P 110 A 720 RS 3150 RQV 350-1300 PA 776
 Komb.-Nr. 9 400 087 335
 Values only apply to test nozzle-and-holder assembly
 1 688 901 017 and fuel-injection test tubing 1 680 750 015

supersedes -
 company: Ford
 engine: 7,8 TC
 172,8 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{4,25-4,35}{(4,20-4,40)}$ mm (from BDC) Cyl.1; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	13,6+0,1	13,9-14,1	0,5(0,9)			
350	7,4-7,6	1,5-1,9	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1300	15,2-17,8	-	-	-	ca. 15	100	min.9,0	350	0,6-1,3
ca. 65	12,6 4,0 1620	1360-1370 1500-1530 0-1,0					350 620-680=2,0	7,4-7,6	500	2,3-2,7
						370-440			800	4,0-4,3
									1000	5,0-5,3
									1300	7,3

Torque control travel a = 0,70 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1300	0,6 bar 139,0-141,0 (137,0-143,0)	1360-1370*	LDA 600	0,6 bar 113,0-117,0 (111,0-119,0)	100	145,0-165,0 (141,0-169,0)	1300	13,6+0,1
			LDA 1000	0,6 bar 135,0-139,0 (133,0-141,0)	350	15,0-19,0 (12,5-21,5)	600	14,2+0,1
			LDA 500	0 bar 99,0-101,0 (96,0-104,0)			1000	14,1+0,1
							1050	13,8+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

TEST-BENCH 4113

K18

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10.85

K18

D. Adjustment Test for Manifold Pressure Compensator

FOR 7,8 a

Test at n = **500** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PES 6 P..RS 3150 + RQV..PA 776	0,6	0 0,42 0,48	14,2-14,3 13,5-13,6 13,7-13,8 13,9-14,1

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FOR 7,8 a 2

1. Edition

En

PES 6 P 110 A 720 RS 3150 RQV 350-1300 PA 776-2

Komb.-Nr. 9 400 087 336

supersedes
company: Ford
engine: 7,8 I - TC
210 PS

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $4,25-4,35$
($4,20-4,40$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	12,0+0,1	12,2-12,4	0,5 (0,9)			
350	7,8-8,0	2,3-2,7	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1300	15,2-17,8	-	-	-	ca. 16	100	min.9,5	350	0,6-1,3
ca. 62	11,0 4,0 1620	1360-1370 1470-1500 0-1,0				370-440	350 590-650= 2,0	7,8-8,0	500 800 1000 1700	2,3-2,7 4,0-4,3 5,0-5,3 7,3

Torque control travel a = 0,30 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1300	0,55 bar 121,5-123,5 (119,5-125,5)	1360-1370*	LDA 1000	0,55 bar 110,5-114,5 (108,5-116,5)	100	148,0-168,0 (144,0-172,0) =20,0-21,0 mm RW	1300 600 1050 1000	12,0+0,1 12,3+0,1 12,2+0,1 12,2+0,2
LDA 600	0,55 bar 86,0-90,0 (84,0-92,0)		LDA 500	0 bar 77,0-79,0 (74,0-82,0)	350	23,0-27,0 (20,5-29,5)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

FOR 7,8 a 2

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..RS 3150 +RQV..PA 776-2	0,55	0	12,3-12,4
		0,45	12,0-12,1
		0,41	12,2-12,3
			12,0-12,1

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FOR 7,8 b

1. Edition

En

PES 6 P 110 A 720 RS 3151 RQV 350-1300 PA 777
Komb.-Nr. 9 400 087 338

supersedes -
company: Ford
7,8 TC
engine: 165,4 kW

Values only apply to test nozzle-and-holder assembly
1 688 901 017 and fuel-injection test tubing 1 680 750 015

517 011-00 413

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,25-4,35$ mm (from BDC) $(4,20-4,40)$ Cyl.1; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1300	14,1+0,1	14,5-14,7	0,5 (0,9)			
350	7,4-7,6	1,6-2,0	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1300	15,2-17,8	-	-	-	ca. 15	100	min.9,0	350	0,6-1,3
ca. 65	13,1	1360-1370					350	7,4-7,6	500	2,3-2,7
	4,0	1510-1540					620-680 = 2,0		800	4,0-4,3
	1630	0 - 1,0				370-440			1000	5,0-5,3
									1300	7,3

Torque control travel s = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1300	0,8 bar 144,5-146,5 (142,5-148,5)	1360-1370*	LDA 600	0,8 bar 108,0-112,0 (102,0-114,0)	100	150,0-170,0 (146,0-174,0) = 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 73,0-75,0 (70,0-78,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

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D. Adjustment Test for Manifold Pressure Compensator

FOR 7,8 b - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..RS 3151 + RQV..PA 777	0,8	0 0,58 0,39	13,8-13,9 12,1-12,2 13,7-13,8 12,6-12,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

PE 8 P 110 A 320 LS 3813-11 RQV 350-1150 PA 378-3
Komb.-Nr. 0 401 848 778
1-3-7-2-6-3-5-4 je 45°±0,5°(±0,75°)

supersedes -
company: Daimler-Benz
engine: OM 422
206 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,00-4,10
(3,95-4,15) mm (from BDC) cyl.8

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,5+0,1	13,1-13,3	0,4(0,8)			
350 600 1150	7,4-7,6 -	1,4-1,8 C, Sp. 4u.5	0,4(0,7) 0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1230	15,2-17,8	-	-	-	ca.14	100 350	min.8,7 7,0-7,2	300 580 870 1150	0,6-0,9 3,5-3,7 5,2-5,3 7,6
ca. 0,2	10,5 4,0 1400	1190-1200 1295-1325 0-1,0				375-485				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	131,0-133,0 (128,5-135,5)	1190-1200 *	600 1150	109,0-113,0 (106,0-116,0) 84,0-87,0 (81,0-90,0) **	100	140,0-160,0 (136,0-164,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

** Mindermenge

11.85

BOSCH

Geschäftsbereich KM, Kundendienst, Kfz-Ausrüstung.
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Test Specifications Fuel Injection Pumps ① and Governors

En

PE 8 P 120 A 320 LS 3807 -10 RQV 300-1150 PA 545

1-8-7-2-6-3-5-4 je 45 ° ±0,5° (±0,75°)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 4.85

company: Daimler-Benz

OM 422 A

engine: 243 kW (330 PS)

Komb.-Nr. 0 401 848 732

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$
(3,95-4,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,7+0,1	15,7-15,9	0,5(0,9)			
300	5,2-5,4	1,2-1,8	0,8(1,2)			
750 500	---	C, Sp. 4 u.5	0,7(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 17	100	min. 6,7	300	1,6-1,8
ca. 54	9,7 4,0 1350	1190-1200 1235-1265 0 - 1,0					300	5,0-5,2	800	6,0-6,2
							335-405	=2,0	1200	8,1-8,3
									1260	9,9

Torque control travel a = 0,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 157,5-159,5 (154,5-162,5)	1190-1200*	LDA 750	0,7 bar 173,5-175,5 (170,5-178,5)	100	140,0-163,0 (136,0-164,0)	1150 750 900	10,7+0,1 11,0+0,2 10,9+0,3
			LDA 500	0 bar 139,0-141,0 (136,0-144,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 k 4

- 2 -

Test at n = **500** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 8 P..LS 3807-10 + RQV..PA 545	0	0,40 0,47	10,3-10,4 10,4-10,5 10,9-11,1

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 K 5

1. Edition

En

PE 8 P 120 A 320 LS 3807-10 RQV 300-1150 PA 545-1
Komb.-Nr. 0 401 848 754

supersedes

company: Daimler-Benz

engine: OM 422 LA
276 kW

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,0-4,1 \\ (3,95-4,15) \end{matrix}$ mm (from BDC) cyl.8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,0+0,1	18,2-18,4	0,5 (0,9)			
300	5,1-5,3	1,2-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 20	100	min. 6,8	300	1,6-1,8
ca. 56	11,0 4,0 1400	1190-1200 1250-1280 0 - 1,0					300 375-445 = 2,0	5,1-5,3 = 2,0	800 1200 1270	6,0-6,2 8,6-8,8 9,7-10,4

Torque control travel a = 0,40 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 182,0-184,0 (179,0-187,0)	1190-1200 *	LDA 750	0,7 bar 195,0-198,0 (192,0-201,0)	100	140,0-160,0 (136,0-164,0)	1150 750	12,0+0,1 12,4+0,1
			LDA 500	0 bar 141,0-143,0 (138,0-146,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 K 5 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P..LS 3807-10 + RQV..PA 545-1	0	0,40 0,55	10,5-10,7 11,1-11,2 12,2-12,4

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

PE 8 P 120 A 320 LS 3807-10 RQV 300-1150 PA 545-2
Komb.-Nr. 0 401 848 762

supersedes 4.85.

company: Daimler-Benz

engine: OM 422 A
243 kW

1-8-7-2-6-3-5-4 je 45° ± 0,5° (± 0,75°)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,0-4,1}
(3,95-4,15) mm (from BDC) cyl.8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,7+0,1	15,9-16,1	0,5(0,9)			
300	5,2-5,4	1,2-1,8	0,8(1,2)			
750	-	C, Sp.4 u. 5	0,7(1,2)			
500	-					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 17	100	min.6,7	300	1,6-1,8
ca. 54	9,7	1190-1200					300	5,0-5,2	800	6,0-6,2
	4,0	1235-1265					335-405	=2,0	1200	8,1-8,3
	1350	0-1,0							1260	9,9

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 159,0-161,0 (156,0-164,0)	1190-1200*	LDA 750	0,7 bar 173,5-175,5 (170,5-178,5)	100	140,0-160,0 (136,0-164,0)	1150	10,7+0,1
			LDA 500	0 bar 138,0-140,0 (135,0-143,0)			750	11,0+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

ME 14,6 k 2

-2-

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference
			mm (1)
PE 8 P..LS 3807-10 +RQV..PA 545-2	0	0,45	10,0 - 10,3
		0,50	10,1 - 10,3
			10,5 - 10,7

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 k 3

2. Edition

En

PE 8 P 120 A 320 LS 3807-10 RQV 300-1150 PA 545-3
 Komb.-Nr. 0 401 848 763
 1-8-7-2-6-3-5-4 je 45 ° ± 0,5 ° (± 0,75 °)
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 4.85
 company: Daimler-Benz
 engine: OM 422 LA
 276 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,00-4,10 \\ (3,95-4,15) \end{matrix}$ mm (from BDC) cyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,5+0,1	17,5-17,7	0,5 (0,9)			
300	5,1-5,3	1,2-2,0	0,8 (1,2)			
750	-	C, Sp. 4 u. 5	0,8 (1,2)			
500						

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1190	15,2-17,8	-	-	-	ca. 20	100	min. 6,8	300	1,6-1,8
							300	5,1-5,3	800	6,0-6,2
							375-445 = 2,0		1200	8,6-8,8
ca. 56	10,5	1190-1200							1270	10,0
	4,0	1250-1280								
	400	0 - 1,0								

Torque control travel a = 0,50 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar	1190-1200 *	LDA	0,7 bar	100	140,0-160,0	1150	11,5+0,1
1150	175,0-177,0 (172,0-180,0)		750	187,0-190,0 (184,0-193,0)		(136,0-164,0)	750	11,8+0,2
			500	137,0-139,0 (134,0-142,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 k 3 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P.. LS 3807-10 +RQV .. PA 545-3	0	0,41 0,49	10,3 -10,4 10,6 -10,7 11,2 -11,4

Notes:
 (1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 K 6
1. Edition

En

PE 8 P 120 A 320 LS 3807-10 RQV 300-1150 PA 545-4
Komb.-Nr. 0 401 848 773

supersedes
company Daimler-Benz
engine: OM 422 A
243,0 kW

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

0 401 848 773

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,00-4,10 \\ (3,95-4,15) \end{matrix}$ mm (from BDC) cyl. 8

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	10,5+0,1	15,3-15,5	0,5(0,9)			
300	5,1-5,3	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1190	15,2-17,8	-	-	-	ca. 17	100	min. 6,7	300	1,6-1,8
ca. 54	9,5 4,0 1350	1190-1200 1235-1265 0 - 1,0					300 335-405= 2,0	5,1-5,3 2,0	800 1200 1260	6,0-F 2 8,1-8,3 9,5-10,2

Torque control travel a = 0,30 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,7 bar 153,0-155,0 (150,0-158,0)	1190-1200*	LDA 750	0,7 bar 168,5-170,5 (165,5-173,5)	100	140,0-160,0 (136,0-164,0)	1150 750 900	10,5+0,1 10,8+0,2 10,7+0,3
			LDA 500	0 bar 139,0-141,0 (136,0-144,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 K 6 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8P..LS 3807-10 + RQV..PA 545-4	0	0,40 0,46	10,2-10,4 10,3-10,4 10,6-10,8

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

PE 8 P 120 A 320 LS 3807-10 RQV 300-1150 PA 545-5
Komb.-Nr. 0 401 848 774

supersedes
company Daimler-Benz
engine: OM 422 LA
276,0 kW

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

Test ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{4,0-4,1}{(3,95-4,15)}$ mm (from BDC) $\text{cyl. } 1.8$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8+0,1	17,7-17,9	0,5(0,9)			
300	5,1-5,3	1,2-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 1a 2a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 20	100	min. 6,8	300	1,6-1,8
ca. 56	10,8 4,0 1400	1190-1200 1250-1280 0 - 1,0					300	5,1-5,3	800	6,0-6,2
							375-445	=2,0	1200	8,6-8,8
									1270	9,7-10,4

Torque control travel a = 0,40 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 2b 4a	Fuel delivery characteristics high idle speed 5a 5b		Starting fuel delivery idle switching point 6		Torque-control travel Control rod travel mm 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
LDA 1150	0,7 bar 177,0-179,0 (174,0-182,0)	1190-1200 *	LDA 750	0,7 bar 190,0-193,0 (187,0-196,0)	100	140,0-160,0 (136,0-164,0)	1150 750	11,8+0,1 12,2+0,2
			LDA 500	0 bar 141,0-143,0 (138,0-146,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 K 7 - 2 -

Test at n = **500** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 8P..LS 3807-10 +RQV..PA 545-5	0	0,40 0,54	10,5-10,7 11,1-11,2 12,0-12.2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 8 P 120 A 320 LS 3807-10 RQ 300/950 PA 546-8
 Komb.-Nr. 0 401 848 777
 1-8-7-2-6-3-5-4 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -
 company: Daimler Benz
 engine: OM 422 A
 236 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $(3,95-4,15)$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	10,7+0,1	16,3-16,5	0,5(0,9)			
300	4,9-5,1	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7		Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Torque control rev/min 11		Control rod travel mm 12
600	19,2-20,8	600	20,0	9,7	995-1010	300	5,0	100	min.6,6	950	10,7-10,8	750	10,8-11,0		
VH =	max. 46°			4,0	1030-1060			300	4,9-5,1						
				1150	0-1,5			365-415	= 2,0						

Torque-control travel on flyweight assembly dimension a = 0,20 mm Speed regulation: At 995-1010 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2	Control rod stop rev/min 3	Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5	Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm 7	Control rod travel mm 8
LDA	0,7 bar		-	LDA	0,7 bar		100	140,0-160,0		
950	163,0-165,0 (160,0-168,0)			750	171,0-173,0 (168,0-176,0)			(136,0-164,0)		
				LDA	0 bar					
				500	136,0-140,0 (133,0-143,0)					

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 14,5 q 6

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P..LS 3807-10 + RQ..PA 546-8	0	0,45 0,50	9,9-10,1 10,0-10,1 10,4-10,6

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 11,0 1

3. Edition

En

PE 6 P 120 A 320 LS 3815 RQ 300/1150 PA 511-1

supersedes 9.83
company: Daimler-Benz
engine: OM 421 A
184 kW (250 PS)
Komb.-Nr. 0 401 846 742

1 - 6 - 3 - 5 - 2 - 4
0 - 75 -120-195-240-315° + 0,5° (+ 0,75°)
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,0-4,1}
(3,95-4,15) mm (from BDC) Cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,0+0,1	16,9-17,1	0,5(0,9)			
300	5,0-5,2	1,4- 2,2	0,8(1,2)			
600	-	C, Sp. 4 u. 5	0,8(1,2)			
500						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12	11	12	11	12
600	19,2-20,8	600	20,0	10,0	1195-1210	300	4,5	100 min. 6,0		-	-				
	VH=max. 46°			4,0	1250-1280			300 4,4- 4,6							
				1350	0- 1,5			340-380 = 2,0							

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
LDA	0,7 bar 169,0-171,0 (166,0-174,0)	-	LDA	0,7 bar 166,0-172,0 (163,0-175,0)	100	130,0-150,0 (126,0-154,0)
			600			
			LDA	0 bar 146,0-148,0 (143,0-151,0)		
			500			

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 11,01

Test at n = **500** rev/min ^{decreasing} pressure - in bar gauge pressure
_{increasing}

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..LS3815 + RQ..PA 511-1	0	0,39	10,4-10,5 10,6-10,7

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 8 P 120 A 320 LS 3816-10 RQ 300/1150 PA 546-4
 Komb.-Nr. 0 401 848 766
 1-8-7-2-6-3-5-4 je 45°±0,5°(±0,75°)
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -
 company: Daimler-Benz
 engine: 0 M 422 A
 243 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ mm (from BDC)
 $(3,95-4,15)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,7+0,1	15,9-16,1	0,5(0,9)			
300	4,9-5,1	1,2-1,8	0,8(1,2)			
750	-	c, Sp. 4u.5	0,7(1,1)			
500	-					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	9,7	1195-1210	300	5,0	100	min.6,6	1150	10,7-10,8
VH =	max. 46°			4,0	1250-1280			300	4,9-5,1	750	10,9-11,1
				1350	0-1,5			365-415 = 2,0			

Torque-control travel on flyweight assembly dimension a = $0,3$ mm Speed regulation: At $1195-1210$ min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1150	0,7 bar 159,0-161,0 (156,0-164,0)	-	LDA 750	0,7 bar 173,5-175,5 (170,5-178,5)	100	140,0-160,0 (136,0-164,0)
			LDA 500	0 bar 138,0-140,0 (135,0-143,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 u 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 8 P ..LS 3816-10 + RQ..PA 546-4	0	0,45 0,50	10,0-10,3 10,1-10,2 10,5-10,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 12 P 120 A 320 LS 3819-2 RQ 300/1050 PA 656

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° ±0,5° (±0,75°)

superseded 12.84
company: Daimler-Benz
OM 424 LA
engine: 441 kW
Komb.-Nr.0 401 840 713

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testo-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ mm (from BDC) Cyl.12; RW = 9,0-12,0 mm
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	12,0±0,1	18,2-18,4	0,5(0,9)			
300	5,5-5,7	1,4-2,0	0,8 (1,2)			
500	-	C, Sp. 4 u.5	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Setting point rev/min 7		Test specifications Control rod travel mm 10 rev/min 9		Torque control rev/min 11 Control rod travel mm 12	
600	19,1-20,8	600	20,0	11,4,0	1085-1095	300	5,6	100	min.6,0	-	-	-	-
VH =	max.46			1300	1165-1195			300	5,5-5,7				
					0-1,5			360-400=2,0					

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1085-1095 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
LDA	0,8 bar	-	-	LDA	0 bar	100	170,0-190,0
1050	182,0-184,0 (179,0-187,0)			500	141,0-143,0 (138,0-146,0)		(166,0-194,0)

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 21,9 d

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 12 P..LS 3819-2 +RQ..PA 656	0	0,49 0,59	10,7-10,8 11,2-11,4 12,0-12,2

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

En

PE 6 P 120 A 720 RS 7015 RQV 200-1000 PA 768
Komb.-Nr. 0 402 646 828

supersedes -
company: Scania
engine: DSC 11 03

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 015

See page 2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 5,0 - 5,1 \\ (4,95 - 5,15) \end{matrix}$ mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,3+0,1	21,8-22,0	0,6 (0,9)			3,3 ± 0,1 (3,0-3,5)
225	4,8-5,0	1,5-1,9	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1000	15,2-17,8	-	-	-	ca. 10	100	min. 6,2	150	1,5-1,8
ca. 60	13,3 4,0 1300	1040-1050 1150-1180 0 - 1,0					225 310-370 = 2,0	4,7-4,9	430 720 1000	3,1-3,6 5,1-5,4 7,9

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 218,0-220,0 (215,0-223,0)	1040-1050*	LDA 1000	0,9 bar 208,0-216,0 (206,0-218,0)	100	240,0-290,0 = 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 175,0-179,0 (173,0-181,0)	225	4,7-4,9 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

SCA 11,1 a - 2 -

Test at n = 500 rev/min ^{decreasing} pressure - in bar gauge pressure
_{increasing}

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference
			mm (1)
PE6 P.. RS 7015 +RQV .. PA 768	0,90	0 0,43 0,28	14,3-14,4 12,5-12,6 13,7-13,8 12,7-12,9

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDI-1-400/116
- For sealing, see VDI-1-400/117
- Test specifications approved by Scania 3.5.1985
- Start of fuel delivery-engine: 17° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9-3,1 mm.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 21,9 g

1. Edition

En

PE 12 P 120 A 320 LS 7117 RQV 350-1050 PA 781
Komb.-Nr. 0 402 640 801
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067
1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315 ° -⁺ 0,5 ° (± 0,75 °)

supersedes -
company: Daimler-Benz
OM 424 LA
engine: 463,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Batches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{5,2-5,3}
(5,15-5,35) mm (from BDC) Cyl.12; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1030	12,8+0,1	18,2-18,4	0,5 (0,9)			
350	5,4-5,6	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1050	15,2-17,8	-	-	-	ca. 12	100	min. 6,1	350	
ca. 56	11,9	1080-1090					350	4,4-4,6	510	
	4,0	1200-1230				400-600			1150	
	1300	0 - 1,0							1200	

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1030	0,7 bar 182,0-184,0 (179,0-187,0)		LDA 600	0,7 bar 180,0-184,0 (177,0-187,0)	100	140,0-160,0 (136,0-164,0)	-	-
			LDA 500	0 bar 149,0-151,0 (146,0-154,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

MB 21,9 g - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 12 P..LS 7117 +RQV .. PA 781	0,7	0 0,35 0,40	12,8-12,9 11,7-11,9 12,1-12,3 12,5-12,7

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)